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A Supplement illustrating and describing developments in Electric Railway Traction is presented with every copy of this week's issue

Limitation of Dividends Bill

PUBLICATION of the details of the Limitation of Dividends Bill confirms the impression we advanced in THE RAILWAY GAZETTE of May 10, that for the purposes of the Budget proposals railway preferred ordinary stocks will not be restricted to a 4 per cent. dividend, nor will the deferred and preferred issues of the L.N.E.R. and the Southern be lumped together for the calculation of the dividend permitted. Preference capital, to which the limitation does not apply, is defined as "share capital carrying the right to dividends at a fixed rate payable in priority to all the dividends on some other class of share capital, whether or not it also carries the right to some further participation in profits" and there is now little doubt that railway preferred stocks fall within this category. The "ordinary" stock, with which alone limitation is concerned, is the capital ranking after the preference. So far as the railways are concerned therefore the deferred stock, where it exists, is the ordinary stock for the purposes of the legislation. The clarification now made does not relieve the hardship which the Government action may impose on Great Western and on London Midland & Scottish stockholders, but it clears the way for Southern deferred, which under the financial agreement would never receive more than 3·2 per cent., and at some future date may soften the blow to London & North Eastern deferred stockholders, whose maximum would have been 4·7 per cent.

Full Control for the State

Even more drastic in its effect on all sections of industry, and indeed on every individual in the State, is the extension of the power of the Government to take complete control of all persons and all property. The necessary legislation was passed through both Houses of Parliament in less than three hours on Wednesday. In effect, the new Act nationalises all industry and makes every individual a unit in Government plans. Simultaneously, a further attempt is made to remove, as far as possible, profit from wartime business by raising the Excess Profits Tax to 100 per cent. In general terms, something similar to the legislation now enacted had been expected in the early days of the war, when it was feared that intensive air attack might immediately entail disruption of civil life and that it would be necessary to vest complete powers in the administration. The swiftness and silence in which the nation has completely surrendered to the Government rights and privileges built up through long generations is the measure of the peril of the times. Labour members of the Government can contemplate a more complete achievement of nationalisation—including the work of their favourite objectives, the banks—brought about in a few hours by necessity than their struggles could have wrought in years. What effect the new Act will have upon recent Government agreements, such as that with the railways, it is yet too early to foresee.

* * * *

Manufacturing Co-operation in Wartime

When representatives of the Ministry of Supply took formal delivery last Monday of the first train load of 50 French-type 20-ton covered wagons of which large quantities are being built by various manufacturers throughout the country, Mr. Peter Bennett, Director-General of Tanks & Transport, Ministry of Supply, spoke of the general policy of the Ministry in placing orders. He emphasised the goodwill shown by all in linking military with manufacturing requirements, and spoke of the immediate programme which called for the rapid production of very large numbers of railway vehicles, and armoured fighting vehicles. There was also, he said, the long-term programme in which the assistance was wanted of all firms able to take part. The policy of the Ministry of Supply was to place orders with a limited number of firms, and others who were able to help were advised to get into touch with the main contractors in order to find out how their machine tools and plant could be used. The processes of manufacture often left valuable machine tools idle for periods. It was by close co-operation with manufacturers both large and small that these periods of machine tool idleness in one plant could be used for the benefit of other works, and thus secure the maximum utilisation of valuable machine tools. This would afford more effective assistance on the part of the smaller firms towards the national effort than would result in placing portions of large contracts directly, or indirectly, in their hands.

* * * *

Scrap Iron and Steel Campaign

Every well-organised workshop has, as a matter of routine, its proper methods of normal scrap disposal, but nevertheless there are few plants where discarded or broken parts of machines, out-of-date spares, and similar unwanted materials are not to be found. This kind of scrap is one of the sources for which a campaign is now in progress. Scrap iron and steel is required in increasing amounts for the production of munitions, ships, railway material, and so on, the steelworks using it in various proportions mixed with new metal. There are ample supplies purchasable in the U.S.A., but they occupy valuable shipping space and deplete the sterling exchange,

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and there is less shipping now than in 1913. Many thousands of tons of steel and iron scrap have been made available, chiefly by direct circularising in likely directions. Salvage work by the municipalities has also contributed its quota, and disused tramway rails have been recovered, though the financial return may have been small. The British railways have already made important contributions in the form of obsolescent spare parts, broken equipment, and discarded plant, which, though small in book value, free overseas transport to handle other goods in appreciable quantities.

* * * *

Workers' Control in Mexico

The transfer of control of the Mexican Railways from the Workers' Administration to the Government, reported in our news section this week, comes as no great surprise. The financial situation has grown steadily worse, and apparently the service has deteriorated even from the bad condition in which it was when the workers took control in May, 1938. In the circumstances it is perhaps worth quoting the editorial comment we made in our issue of June 10 of that year on this strange event. We referred to the dual responsibility which the workers' management then appeared to have, and added: "By their election of the members of the council of administration the employees charge them with the responsibility of producing certain results. At the same time it would appear that the council is also responsible to the Government to produce certain results. Exactly what results are demanded does not appear in the news of this development quoted in our report on a later page. Presumably they must be the same, and, that being so, the justification for the complicated process of an election by the employees is not immediately apparent. This question of control and administration, and the exact definition of their respective spheres, is important in any association if it is to be successful. The result aimed at has to be clearly understood by all concerned, and the administrators, who are held responsible for producing the result, must be free to adopt whatever methods they consider best for the purpose. Interference with methods of administration by outside bodies not directly responsible for producing the desired results immediately undermines the responsibility of the proper administrators, who cannot therefore be blamed should they fail."

* * * *

New L.M.S.R. London Suburban Timetables

At various times in the past comments have been made in THE RAILWAY GAZETTE concerning the clarity or otherwise of British timetable books. The new L.M.S.R. London suburban timetables, which operate from May 6, are in our judgment an advance on anything of the kind previously published in this country, and might well serve as a model for future compilations of this nature. The "Bradshaw" *format* has been abandoned, and a larger and much more easily readable type has been adopted, with the additional advantage that all "p.m." times are in heavy type, so that afternoon and evening trains are readily distinguished from those in the morning. As far as possible all notes have been removed from the train columns, and the principal services have separate tables for Mondays to Fridays, Saturdays, and Sundays respectively. Most of the principal tables give only the minute figures in the train columns, with the hour at the head of the column and a heavy figure in the column to indicate a change of hour. The Stanmore branch table shows departures only, and has the curious omission that the duration of the journey is not mentioned. It would be an advantage to future issues if in the Euston—Bletchley and St. Pancras—Bedford tables some indication were given of the trains provided with restaurant cars.

New York Central Accident at Little Falls

That only 30 persons, out of a complement of well over 200, on the New York Central's Lake Shore Limited lost their lives in the accident at Little Falls on April 19, is fortunate in face of the circumstances. The train was travelling at high speed round a 14½-ch. curve on which the limit was 45 m.p.h. when the locomotive became derailed, and within about 300 ft. crashed head-on into a rock wall. The last speed shown on the recorder in the cab was 59 m.p.h., but it may have been higher at the time of derailment. This will doubtless be revealed when the proceedings at the enquiry are made known. There was a considerable cant on the curve, and we have a note that some years ago it was 8½ in. The rolling stock was of heavy standard American all-steel construction, and although, as our illustration on page 741 shows, the leading coaches were badly damaged, there was no telescoping, and in the last 8 vehicles of the 15-car train no one was even seriously injured. A freak of the accident was the complete detachment of the baggage car next to the tender, and its continued passage along the line where it came to a stand by the action of the automatic air brake some 200 ft. beyond the scene of the accident. Another extraordinary feature was the doubling under itself of the heavy cast-steel locomotive frame, so that the back extension, normally below the firebox, was finally under the smokebox. The locomotive did not overturn on the curve, but evidently climbed the outer rail. It was not one of the latest of the numerous Hudson type of the New York Central System, the balancing of which has been improved so that at 90 m.p.h. the hammer blow is now only 3½ tons.

* * * *

Trading with the Enemy

The Treasury and the Board of Trade have called the attention of traders and others to the fact that the trading with the enemy legislation applies to any area which is in the occupation of a power with whom His Majesty is at war. At the present time the Netherlands and the Grand Duchy of Luxembourg, are in German occupation, and commercial, financial, or other intercourse or dealings with persons or concerns in those countries are prohibited without express authority. That does not apply to Netherlands Overseas Dependencies, as long as business with them does not involve intercourse with the Netherlands proper. Returns should be made under paragraph 5 of the Trading with the Enemy (Custodian) Order, 1939, to the Custodians of Enemy Property of all moneys which, but for the enemy occupation of the Netherlands and Luxembourg, would be payable to persons or concerns in those countries, and of any property held or managed in this country for or on behalf of such persons or concerns, except where payment is made by permission of the Trading with the Enemy Branch. Under present conditions the greatest caution should be exercised in regard to transactions with any part of Belgium. No remittances should be made in respect of existing commitments and no new commitments should be entered into with persons or concerns in any part of Belgium, without previous consultation with the Trading with the Enemy Branch (Treasury and Board of Trade) at Alexandra House, Kingsway, or with such other department as may be competent to deal with the matter.

* * * *

The Gauge Question in New Zealand

From some of the notes by Mr. M. A. Park upon a meeting on February 12 last of the Australian Railway & Locomotive Society, published in *Transport & Engineering in Australia*, it appears that New Zealand narrowly escaped the acute difficulties experienced in Australia

resulting from each State building its railways to its own selected gauge. In the 'sixties, the gauge question was fiercely discussed in New Zealand. About 1860, during the construction of the Christchurch—Lyttelton railway, the Government had, on the recommendation of Robert Stephenson, decided upon the 5 ft. 6 in. gauge as the most suitable for the colony. Later, however, the Irish 5 ft. 3 in. gauge was approved for the Canterbury lines, though this decision was subsequently modified, and 4 ft. 8½ in. gauge railways were authorised. It was only in 1870 that the matter was finally settled, the Public Works Act of that year standardising 3 ft. 6 in. as the gauge throughout the colony. It is probable that this was a wise decision, as the 3 ft. 6 in. gauge is economical and very suitable for developing new areas, and it will be some time before New Zealand requires a railway system comparable with that in South Africa, where this gauge is still found suitable for huge engines and loads and for intensive traffic hauled at reasonably high speeds.

* * * *

An American General Utility Locomotive

Prior to giving out orders for the construction of some new and very powerful locomotives of the 4-8-2 type for freight and passenger service, the New York Central converted two engines of an existing 4-8-2 freight class, and put them through an exhaustive series of rail stress tests to determine the comparative effects on the track produced by the freight locomotive with 5 ft. 9 in. and a passenger locomotive with 6 ft. 9 in. driving wheels. The converted engines were prepared for high-speed operation by the application of lightweight revolving and reciprocating parts, improved cross counterbalancing of the driving wheels and a number of other changes. Approximately 570,000 readings were recorded by 288 strain gauges located at close intervals in main-line track. The results indicated for the converted locomotives a performance both from the standpoints of track stresses and riding qualities equal to that of the passenger engines, and these converted locomotives have been handling fast and heavy main-line passenger trains for the past few months. An order has now been placed for 50 new mixed traffic 4-8-2 locomotives, having an estimated cylinder horsepower of about 4,400 at 50 m.p.h.

* * * *

"Way for the Express"

We occasionally receive complaints from correspondents who aver that long-distance passenger trains are made subservient to local ones, and that delays and consequent unpunctual arrivals on the part of the former are caused mainly by the preference given to the latter in the vicinity of terminal and other stations serving the larger centres of population. Important expresses, it is said, are, during certain periods of the day, held up and sometimes turned on to the slow line to allow a stopping train to use the fast one, with the result that the express is considerably hindered and arrives late, much time being thus lost in the last few miles before reaching the terminus. What our correspondents apparently overlook is that the local and suburban trains about which they wax so indignant are mainly running in the service of the business communities to whom in the first instance a punctual arrival at their work is a matter of importance, and that the delayed expresses are almost certainly already out of their turns. Some of our correspondents voice their complaints in picturesque language, but the day is past when a path could be cleared for favoured trains and processions by the simple expedient of utilising the sonorities and vociferations of trumpeters and heralds whose "Way for the Lord High Executioner" (or other highly-placed functionary), sufficed to clear all obstructions at a moment's notice.

A New German Timetable

IN the December 22 and March 22 issues of THE RAILWAY GAZETTE reviews were given respectively of the first German war timetables and the revised war service which came into operation on January 21, 1940. The latter showed that the first war services had been framed on too optimistic lines, more especially as regards speed, and revealed that considerable deceleration had taken place, bringing the average running speeds down to much the same level as those in force during recent months in Great Britain. We also stated that, partly on account of weather difficulties in the early months of the year, and also to facilitate the transport of coal, a supplement to the timetable had been issued announcing the cancellation of a number of the trains, including all the "FD" expresses and many of the "D" class fast trains also. In the new April 1 timetables these withdrawals are permanently incorporated. A general intimation, in heavy black type, is to the effect that "the German State Railway can at present run only a limited service of passenger trains. A large number of trains over and above these is shown, marked by a wavy line, which will be run only on a special order being issued." On each page of the book the warning is repeated in regard to these trains "Runs only by special order." It is therefore clear that the substantial curtailment of service, which roughly halves the pre-war frequency and reduces its average speed by one-third, can no longer be attributed to weather difficulties, and the nature of the announcement appears to indicate that the probabilities are against rather than in favour of the "conditional" trains being run. The effect of these reductions on certain services has been remarkable. From Berlin to Leipzig, for example, the only unconditional trains are at 11.58 a.m., 6.30, and 9.20 p.m., whereas hitherto, even in the early months of the war, an express has been available about every hour. From Berlin to Stuttgart there is the choice of only three trains daily—at 7.5 a.m., 11.20 a.m., and 6.54 p.m.—and the unconditional return trains are confined to two, at 7.0 and 9.35 a.m., there being no night service. In place of its pre-war service of high-speed diesel trains, four in each direction daily to and from Berlin, together with a number of steam-hauled expresses on fast timings, Hamburg has to be content with three express trains daily, at 7.34 a.m., 3.34, and 6.35 p.m. down, and 6.55 a.m., 3.12, and 7.20 p.m. up, taking 3 hr. 37 min. to 4 hr. 4 min. for the 178·1 miles, with three very much slower trains.

In the annexed table comparison is made between the normal pre-war long-distance services in Germany and those that have come into operation in the three successive stages of timetable revision since the war began. As in the previous similar analyses, the selection of trains for inclusion in the averages does not include duplicate services at closely corresponding times, nor slower trains which begin and end their journeys at the same times as faster services, or are overtaken *en route* by the latter—that is to say, they fairly represent the scope of the facilities offered to the traveller. The April, 1940, figures show, first, the unconditional services only, and then the full services inclusive of all the trains which run on special orders only. In general, as will be seen, the full service corresponds closely in speed with the February, 1940, service, but the frequency is slightly greater, as might be expected in the summer season; as has previously been made clear, however, this is the maximum possible service that would be authorised in present conditions, and there is no guarantee that any such frequency will be reached. After all the conditional trains have been taken out, it becomes necessary to include slower unconditional trains

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as providing the only travel facilities available over the routes concerned at certain hours of the day, and the increased average journey time of the restricted services is thereby in part explained. All the " FD " trains are conditional, but the all-sleeping car services between Berlin and Munich, Berlin and Vienna, and Berlin and Cologne (the last-mentioned is new, and runs *via* Magdeburg) run unconditionally.

As is clear from the table, many of the most drastic reductions of service are westwards and southwards from Berlin—77 per cent. Stuttgart, 63 per cent. Leipzig, 61 per cent. Munich and Nuremberg, 55 per cent. Hamburg, and 50 per cent. Dresden and Halle; similarly the deceleration of service has been most pronounced in the same direction—57 per cent. Leipzig, 52 per cent. Halle, 51 per cent. Hamburg, 32 per cent. Frankfort-on-Main, 31 per cent. Cologne, and 28 per cent. Stuttgart. To the east and south-east better conditions obtain, but largely as a result of the abolition of frontier formalities; if the full timetable now advertised were run, for example, the Prague service would be 33 per cent. better off in frequency and only 1 per cent. worse off in time than before the war; Vienna would have an equal frequency, 4 per cent. slower; and Königsberg would have 7 per cent. less frequency, and an 18 per cent. slower service. Even with the full reductions of service, these cities are better off than most of the others already mentioned, and Dresden and Breslau, which are on the same routes, benefit in somewhat the same proportion. Excluding Prague, Vienna, and Königsberg, to which special conditions apply, the average increase in journey time in the restricted service, as compared with pre-war, works out at 33 per cent., but if all the conditional trains are run, the increase is only 20 per cent.; again, the restricted service represents an average reduction in frequency of 55 per cent., but if the full nominal service were run, this would be reduced to 11 per cent. The difference between 11 and 55 per cent. witnesses to the drastic nature of the current reductions. The treatment of subsidiary lines and branches in the timetable varies; but as a general rule it may be said that, except on the smaller branches, roughly one-quarter of the trains are indicated as being conditional only, and therefore as not running unless special intimation is given.

GERMAN STATE RAILWAY MAIN-LINE TIMETABLES, APRIL, 1940

Average Journey Times and Frequency of Express Service between Berlin and Various Principal Cities, compared with a normal Winter and the First and Second War Services

Berlin and :—	Distance	Average Journey Time					Average Deceleration		No. of Trains Daily					Average Reduction in Frequency	
		Normal	Oct., 1939	Feb., 1940	April, 1940				Normal	Oct., 1939	Feb., 1940	April, 1940			
					A	B	C	D				A	B	C	D
	miles	h. m.	h. m.	h. m.	h. m.	h. m.	%	%						%	%
Halle ...	100·5	1 51	1 57	2 14	2 49	2 12	52	19	32	20	24	16	28	50	13
Leipzig ...	102·1	1 51	2 00	2 13	2 54	2 15	57	22	32	16	24	12	30	63	6
Dresden ...	111·8	2 27	2 32	2 49	2 59	2 54	22	18	18	12	15	9	16	50	11
Hamburg ...	178·2	3 03	3 26	3 48	4 37	4 08	51	36	20	10	12	9	14	55	30
Breslau ...	204·7	4 14	4 25	4 38	5 07	4 49	21	14	21	15	17	12	20	43	5
Prague ...	230·0	6 46	6 48	6 45	7 03	6 49	4	1	6	8	8	6	8	*Nil*	+ 33
Nuremberg	295·6	7 20	7 32	7 40	8 38	7 40	18	5	18	12	12	7	20	61	+ 11
Frankfort ...	344·9	6 59	7 47	8 34	9 11	8 40	32	24	18	12	16	10	20	44	+ 11
Cologne ...	362·8	7 29	8 04	9 08	9 49	9 14	31	24	20	12	15	12	18	40	10
Königsberg	365·9	7 31	10 25	8 49	8 48	8 50	17	18	14	6	12	8	13	43	7
Stuttgart ...	404·9	9 53	10 46	12 19	12 40	12 00	28	21	22	11	14	5	15	77	31
Munich ...	405·4	9 06	9 25	10 30	10 46	10 25	18	14	18	12	11	7	14	61	22
Vienna ...	494·2	12 22	13 26	12 54	13 23	12 50	8	4	12	8	12	8	12	33	*Nil*

A—Reduced service now operating. *B*—Full timetable service. *C*—Between normal pre-war service and service now operating. *D*—Between normal service and full timetable (if and when run).

The sleeping car services running across the German frontiers, to which reference has been made in previous issues, are continued and amplified; from Berlin through sleeper services now operate to Zurich, Rome, Riga, Warsaw, Kattowitz, and Bucharest, and also three days weekly between Berlin and Athens, and four days weekly between Berlin and Istanbul, the two last-mentioned constituting the Orient Express service. Sleepers also run between Prague, Vienna, and Budapest, Vienna and Rome, and Munich and Venice, Trieste, and Rome. It is of particular interest that these last and certain other cars operating between Berlin and neighbouring countries are still those of the International Sleeping Car Company, and that in this connection the name of Thomas Cook & Son figures in the current German timetable. A fairly normal service is tabled along the right bank of the Rhine, between Basle and Mannheim, practically within sight of the Western Front for a good part of its length; but most of the trains concerned come in the " conditional " category. In the actual war zone, including the area around Saarbrücken, no passenger train services, of course, are advertised. A supplement to the main timetable book gives the train services in Bohemia and Moravia, as well as German-occupied Poland. A fair service is shown over the main and principal subsidiary Polish lines, but for the most part at very low speeds, probably owing to temporary track running where bridges have been destroyed. The main lines have, on the average, two " D " or " E " express services in each direction daily, but their point to point average speeds seldom exceed 25 to 30 m.p.h. In Germany itself, as previously mentioned, the highest scheduled speeds are slightly over 50 m.p.h. from start-to-stop, and this includes a few of the unconditional trains now running. But the majority of the faster trains are on the conditional list. Among them is an " FD " evening express scheduled to run non-stop from the Schlesischer station at Berlin to Liegnitz (*en route* to Breslau and Krakow), 164·2 miles in 194 min., at 50·8 m.p.h.—the longest non-stop run included in the present German timetables. The April *Reichskursbuch* has been printed in all the meticulous detail characteristic of that publication, and with the usual supplements showing the formation of the long-distance trains, alphabetically arranged summary tables, and much other useful information.

* * * *

The Indian Railways in 1938-39

THE financial year ended March 31, 1939, proved to be generally uneventful from the point of view of the Indian railways, and disappointing financially. As compared with the previous year both exports and imports showed decreases, the former by 10 per cent. and the latter by 12·6 per cent. Being an almost entirely agricultural sub-continent, India is vitally dependent for its prosperity upon the extent and distribution of the rainfall during the south-west and north-east monsoons. Unfortunately, both of them in 1938 were immoderate in different areas. In the eastern districts of the United Provinces, Berar, Bombay & Deccan, and Hyderabad, excessive rainfall and serious floods adversely affected the rice, sugar, jute, cotton, and sesamum crops. On the other hand, there was a failure of the monsoons throughout the entire north-western areas, including the Punjab, Sind, and Rajputana, and also in the Madras Presidency, causing an acute fodder famine in some districts, and reducing the sugar, cotton, or groundnut yield in all of them.

Consequently, the gross traffic receipts of State-owned railways, which comprise nearly nine-tenths of the whole

amounted to only Rs. 94·48 crores,* against Rs. 95·01 crores in 1937-38, a decrease of Rs. 53 lakhs. After meeting all charges, including depreciation and interest on capital at charge, the net result of the year's working was a surplus of Rs. 137 lakhs. This sum was placed to the credit of the general revenues of the Central Government, in part payment of the contribution due from railways for 1938-39. Actually, the number of passengers and tonnage of goods increased, but passenger-miles and net ton-miles decreased, due to the average haul of passengers and goods having fallen from 36 and 261 miles respectively in 1937-38, to 35 and 251 miles in the year under review. Passenger earnings dropped from Rs. 31·08 crores to Rs. 30·73 crores, and freight earnings from Rs. 68·66 crores to Rs. 68·57 crores. To obtain a general idea of the financial fluctuations on Indian State-owned lines during recent years, the following table may be scrutinised :—

FINANCIAL STATISTICS OF INDIAN STATE-OWNED RAILWAYS FROM 1929-30 TO 1938-39, IN LAKHS OF RUPEES UNLESS OTHERWISE STATED (ONE LAKH = £7,500)

	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38	1938-39
Mileage	30,878	31,197	31,640	31,642	31,644	31,619	31,732	31,729	29,680*	29,725
Capital at charge at end of year (in crores)	770	783	790	789	787	787	789	789	754	755
Gross traffic receipts	1,02,70	95,10	86,63	84,43	86,63	90,20	90,65	95,49	95,01	94,48
Operating expenses	55,59	54,39	49,31	49,08	49,50	50,27	50,87	50,23	50,37	51,48
Depreciation fund	12,59	13,07	13,46	13,77	13,56	13,72	13,25	13,15	12,57	12,56
Net traffic receipts	34,52	27,64	23,86	21,58	23,57	26,21	26,53	32,11	32,07	30,44
Net miscellaneous receipts after deducting miscellaneous charges and surplus profits payable to companies.	— 2	—11	1	1,10	1,05	53	86	— 9	— 5	23
Net revenue	34,50	27,53	23,87	22,68	24,62	26,74	27,39	32,02	32,02	30,67
Interest charges	30,46	32,72	33,07	32,91	32,58	31,80	31,39	30,81	29,26	29,30
Surplus	4,04	—5,19	—9,20	—10,23	—7,96	—5,06	—4,00	1,21	2,76	1,37
Paid as contribution to general revenues	6,12	5,74	...	...	...	...	...	...	2,76	1,37
Transferred to railway reserve	—2,08	—10,93	—4,95	...	...	...	...	...	...	...
Ratio per cent. of working expenses (excluding Depreciation Fund) to gross traffic receipts.	54·1	57·2	56·9	56·7	55·8	54·7	54·9	51·4	51·6	53·1
Ratio per cent. of working expenses (including Depreciation Fund) to gross traffic receipts.	66·4	70·9	72·5	73·0	71·4	69·9	69·5	65·2	65·0	66·4
Ratio per cent. of net traffic receipts to capital at charge	4·5	3·5	3·0	2·7	3·0	3·3	3·4	4·2	4·2	4·2

Note 1.—The figures for the years from 1929-30 to 1936-37 are inclusive of those of the Burma Railways.

Note 2.—Credits for materials released from works not charged to revenue were taken in reduction of operating expenses up to 1931-32. From 1932-33 to 1935-36 they were added to receipts and have been included in the above table under net miscellaneous receipts. Since 1936-37, these credits have been taken in reduction of expenditure from the Depreciation Reserve Fund. The amounts involved are as follows : 119 lakhs in 1932-33 and 1933-34, 90 lakhs in 1934-35, and 110 lakhs in 1935-36.

Note 3.—For purposes of proper comparison with past years the ratios in the last three lines of the statement with respect to 1932-33, 1933-34, 1934-35, 1935-36, 1936-37, 1937-38 and 1938-39 have been worked out as if the above sums of 119, 119, 90, 110, 115, 138, and 132 lakhs were deducted from operating expenses.

Note 4.—Working expenses were reduced in 1930-31 by 166 lakhs by a credit from the Depreciation Fund for correction of past accounting adjustments and in 1924-25 by 179 lakhs by certain abnormal refunds of expenditure in previous years.

* Excludes 51·80 miles of Bezwada Masulipatam Railway which was purchased by the State on February 4, 1938.

Between April 1, 1938, and March 31, 1939, 109 new miles of railway were added to the Indian system—99 of these in Indian States and constructed at their cost—but 51 miles of line were closed to traffic. The aggregate route mileage at the end of the year was 41,134. The following new locomotives and rolling stock were placed in service during 1938-39 : broad-gauge—9 locomotives, 375 coaching vehicles, and 2,269 goods wagons ; metre-gauge—24 locomotives, 353 coaching, and 1,008 goods vehicles. In the course of the year the average tractive effort per engine rose from 25,972 lb. to 26,025 lb. on the broad-gauge lines, and from 14,818 lb. to 14,957 lb. on the metre-gauge.

Among the more important events of the year may be mentioned the consideration in both Houses of Legislature of Sir John Thom's judicial report upon the Bihta derailment, the purchase by the Government of the South Bihar and the Hardwar-Dehra Railways, and the introduction of several notable steps to improve earnings, and others to reduce expenditure. Many of the measures taken to increase revenues took the form of action to combat road competition, such as the introduction of (*a*) reduced rates and fares ; (*b*) light trains stopping at intermediate halts and level crossings, but capable of rapid acceleration, and also 11 diesel railcars on the North Western system ; (*c*) feeder bus services ; and (*d*) intensive canvassing for traffic. Third class zone tickets made their appearance, and another novelty for India was the introduction of the Green Arrow registered goods transit system, as well as a modification of this known as the Red Arrow system. Various applications of job analysis constituted the principal steps taken to reduce expenses. An outstanding example of the effectiveness of job analysis was provided by the North Western Railway. At a cost of Rs. 65,760 for the special organisation, Rs. 3,70,991 recurring and Rs. 21,32,855 non-recurring savings were effected on that system during the year. Incidentally, it may be remarked that since the introduction of job analysis on the N.W.R., a sum exceeding Rs. 40½ lakhs (over £300,000) had been saved by March 31, 1939.

The Mysore State Railways, by reason of their total gross earnings having exceeded Rs. 50 lakhs for the first time, were promoted from being a Class II to be a Class I railway. This was the direct result of the Mysore Government having recently taken over the operation of the section of the Bangalore-Poona metre-gauge main line in Mysore territory from the Madras & Southern Mahratta Railway, which previously worked it on behalf of the Mysore Durbar. Considerable progress was made with measures with a view to improving the conduct of the staff, such as increased politeness and honesty, as recommended by the Wedgwood Committee ; amenities for third class passengers also continued to be enhanced in many directions.

Only seven major accidents occurred during the year. Altogether, 66 (105) passengers were killed and 272 (174) injured in accidents to trains, rolling stock, permanent way, etc. ; the figures in brackets are those recorded during the previous year and are given for the sake of comparison. In all classes of accident 280 (320) passengers were killed and 1,264 (1,006) injured. The corresponding figures for railway servants were 17 (18) killed and 152 (107) injured in accidents to trains, etc., and 199 (233) killed and 13,499 (12,138) injured in accidents of all kinds. The worst flood damage was caused at the Aie River bridge on the metre-gauge section of the Eastern Bengal Railway. A portion of the bridge—which consisted of five spans of 100 ft. and two spans of 40 ft. girders—and 400 ft. of the approach embankment were washed away on July 17, 1938, and, though transhipment was effected by means of a temporary pontoon bridge, it was not until October 29 that a pile bridge could be completed and through running resumed.

Among the subjects depicted in the many excellent full-page illustrations in the report are the imposing new railway central offices in Mysore ; the interiors of the large

* Rs. 1 crore = Rs. 100 lakhs, and Rs. 1 lakh = £7,500

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dower-operated signal cabin at Madura, South Indian Railway, and of the new track recording car, G.I.P.R.; the effects of the floods at Aie bridge, mentioned above; a diesel shunting engine on the B.B. & C.I.R.; and one of the 11 diesel railcars delivered to the N.W.R. during the year under review.

* * * *

South Australian Government Railways

EARNINGS during the year ended June 30, 1939, although less by £165,711 or 5·02 per cent. than those for 1937-38, exceeded those of any other financial year since 1929-30. In his latest report, the Railway Commissioner, Mr. C. B. Anderson, shows that in the first 26 weeks of the year under review there was an improvement in earnings of £36,000, but for the remainder of the year there was a continued serious decline. A reduction of £140,000 in earnings from wheat traffic was caused largely by the abnormally low price of wheat. The consequent restriction in purchasing power and the international situation brought about a sharp recession in trade, which resulted in a fall of £69,000 in merchandise receipts. There was at the same time a net increase of £66,428 or 2·41 per cent in expenses, caused, notwithstanding operating economies, by unavoidable increases of £52,000 under arbitration awards and of £20,000 from higher cost of coal. Finances continued also to be adversely affected by the operation of the Redhill—Port Pirie line which caused a heavy loss of revenue, due to the shorter haul as compared with the shorter route *via* Terowie which has still to be maintained and worked. The surplus over working expenses was £232,139 lower and the total deficit on the year's working was £232,106 higher.

Country rail passenger journeys, including those of season ticket holders, were 1,263,452, an increase of 126,914, and their revenue of £370,938 was higher by £28,349 or 8·27 per cent. The suburban rail passenger journeys of 16,265,199 showed a fall of 230,388, but brought in £1,265 more revenue. Total first class receipts were £112,534, an increase of £8,162 or 7·82 per cent., and represented 18·74 per cent. (against 18·29 per cent.) of the total rail passenger receipts. Road motor passenger receipts totalled £639, a decrease of £1,176. In the freight road motor receipts of £8,897 there was an increase of £827. Railway receipts from goods and mineral traffic amounted to £1,934,864, a decrease of £220,270 or 10·22 per cent. Bookstalls and refreshment rooms brought in £97,884, an increase of £2,743. General results are compared in the accompanying summary:—

	1937–38	1938–39
Miles open	2,557⅜	2,557⅜
Train-miles	6,111,121	6,177,407
Rail passenger journeys	17,632,125	17,528,651
Rail-borne goods, tons	2,705,637	2,445,568
Average haul, miles	126	131
Operating ratio, per cent.	83·56	90·09
	£	£
Capital cost of open lines	28,475,805	28,613,526
Gross earnings	3,299,084	3,133,373
Expenses, including pensions	2,756,598	2,823,026
Surplus	542,486	310,347
Interest, sinking fund, and exchange	1,322,224	1,322,191
Total deficit	779,738	1,011,844

Passenger steam train-miles were 1,943,935, a decrease of 135,222, which was due to a curtailment of steam services because of the coal strike. This, and an improved service on suburban lines by use of railcars, led to an increase from 1,545,162 to 1,751,997 in other passenger services. Freight steam train-miles increased from 2,330,899 to 2,335,730. Six 2-8-4 type Mikado locomotives, Class "720," for the 5 ft. 3 in. gauge were constructed during the year under review. At Mile End the new flash butt rail welding plant has been installed and the rail welding depot completed.

New Belgian Atlantic Locomotives

THE new high-speed Atlantic locomotives* of the Belgian National Railways have been subjected to dynamometer car tests details of which are given by Monsieur R. Notesse, of the Locomotive Department of the Belgian National Railways, in the *Bulletin of the International Railway Congress Association*. An engine was required that could maintain exceptionally high speeds with trains of moderate weight and show a higher economy than could be expected of the heavier and more powerful new Pacific type on the Brussels—Ostend and Brussels—Liége lines with trains of such loading. By adopting the 4-4-2 wheel arrangement and providing an adhesion weight of 45 tons, two inside long-stroke cylinders disposed at close centres, a compact and sufficiently powerful locomotive was assured in which internal resistance would be reduced and flexibility in running secured.

The boiler naturally received particular attention, especially in regard to the firebox, front-end arrangements, and superheating. There are incorporated in its design features of British, American, and German practice. The firebox is of large proportions and the side plates of the inner box are almost vertical, which makes it easy for the steam to escape from the body of water and also for the inside firebox to be removed without having to take down the plates of the outer shell. The boiler pressure, 256 lb. per sq. in., is the same as that of the latest Belgian Pacific engines, and it was thought advisable to follow this practice before adopting the higher pressure of 280 lb. per sq. in., the maximum figure deemed to be permissible in present circumstances. The height of the dual blast pipe nozzles was reduced to 7½ in. above the bottom of the smokebox, affording a distance of nearly 6 ft. to the top of the chimney, the double petticoat arrangement used being considered practicable only where there is ample free height above the nozzles. Each of the blast pipe orifices is 4 $\frac{7}{16}$ in. diameter, that of the first petticoat 7½ in., and of the second 12 $\frac{3}{16}$ in.

It soon became apparent that the boiler could easily produce the steam used in the cylinders under all conditions up to the combustion rates of approximately 122 lb. per sq. ft. of grate area per hour. Dynamometer car tests carried out with locomotive No. 1201 from Brussels to Ostend and to Liége, hauling special express trains, showed that with the regulator full open and at varying cut-offs the loss of pressure between the boiler and steamchest was never at any time more than 14 lb. per sq. in. even at the highest powers developed. The superheating of the steam was found to be most satisfactory. After opening the regulator, temperatures of 716 to 752° F. in the steamchest were rapidly attained and occasionally temperatures up to 779° F. were recorded. The highest drawbar horsepower achieved during the various trials was 1,750, corresponding to approximately 2,700 i.h.p. The engine was driven with the regulator full open whilst covering practically identical runs with cut-offs of 30, 25, and 20 per cent. respectively. An example of the work performed taken from the statement of M. Notesse reads as follows:—

Tare weight of the 7 vehicles hauled	284 *tonnes* (279·5 English tons).
Time taken	114 min. (126·8 miles)
Power developed	1,790 h.p.-hr.
Total coal consumption, approx. 8,000 calories (14,400 B.T.U. lb.)	2,408 kg. (5,309 lb.)
Consumption of coal per h.p.-hr.	1,345 kg. (2,965 lb.)

The total resistance of the locomotive was shown to be nearly 50 per cent. less than that of the old Atlantic engines which were 20 per cent. lighter in overall weight.

* Described and illustrated in the April 21, 1939, issue of THE RAILWAY GAZETTE, with a further reference to their speed performances in the Brussels—Ostend main-line passenger services in the issue of March 15, 1940

THE SCRAP HEAP

A War Savings group called the "Four-Twenty-Five" has been formed by eight season-ticket holders who travel regularly in the same compartment of the 4.25 p.m. train between Manchester and Lytham St. Annes.

* * *

A National Savings Group was formed in the Southern Area Divisional General Manager's Office, L.N.E.R., on March 29 and began operations forthwith with every prospect of a successful run of 30 weeks—the first cycle. We understand that the task of collection is in the capable hands of a lady secretary who seems to extract the nimble sixpences by something approaching a walk-over, and we learn from the *L.N.E.R. Magazine* that it was possible to make an investment the first week. The Group scheme has the encouragement of the Chief General Manager of the L.N.E.R.

* * *

GERMAN DISREPUTE

Rolf Gunther Rothmann, of Howitt Road, Hampstead, N.W., a young German who said he was attending a college at Eastbourne, was charged at the Mansion House on May 16 with defrauding the London Passenger Transport Board by travelling with an out-of-date season ticket. According to the *Daily Express*, the Lord Mayor said: "You really will bring your country very much into disrepute." Rothmann was fined £1 and ordered to pay 10s. 6d. costs.

A travel record has recently been established by Ex-Bailie Edward Brown, of Dundee, who has been a regular traveller since 1888 on the Monifieth-Dundee section of the L.M.S.R. and L.N.E.R. Joint Railway. A letter of congratulation has been sent to him by the Divisional General Manager (Scottish Area), London & North Eastern Railway.

* * *

Mr. William Cawthera is probably the only man in London wearing the swastika on his clothes. It keeps company with the flags of France, Spain, Italy, and Holland. For 17 years this Bradford man has been the London Transport interpreter for travellers. He says that "Japanese words are fairly easy, because they are pronounced phonetically. Besides the Japanese say *Aye* when they mean *Yes*, just as we do in my own county, Yorkshire."

* * *

L.C. & D.R. SUBURBAN TRAINS

Next morning, Wednesday [January 2, 1878] we [my father and I] took the train from Holborn Viaduct to Crystal Palace, High Level station. Little did I dream how many hundreds of times I was destined to travel up and down that weary stretch of line, and how I would hate it and grumble at the hard wooden seats and the through and through smelly compartments! For sighted people it must have been still worse, for they would have the added discomfort of bad light. I have gone up to town by the first train in the morning and come down again at midnight, after being at some glorious concert, more times than I can count. There was nothing like that line and that journey for bringing one down to earth—and perhaps a little lower—after having been in the seventh heaven, listening perhaps to the Meistersinger Overture or some other great work.—*From "A Blind Musician Looks Back," an autobiography by Alfred Hollins.*

* * *

RAPID TROOP TRANSPORT

The first division of the troops that are to proceed by Paddington Canal for Liverpool, and thence by transports for Dublin, will leave Paddington today, and will be followed by others tomorrow and on Sunday. By this mode of conveyance the men will be only seven days in reaching Liverpool—*From "The Times" of December* 19, 1806.

* * *

THE "BALLYHOO REVIEW"

Paper restrictions have led to the suspension of the bright little weekly publication, *Ballyhoo Review*, the news bulletin of H.Q.1 of the L.N.E.R. The 29th number now before us has a short note thanking readers and contributors for their support, and expressing the hope that this is but a temporary exit. The News Bulletin of H.Q.1 has brightened many a dull moment for its readers, even if the inner personal meaning of certain of the jokes was not fully understood by others than those on the headquarter staff.

THE EMPIRE'S STRENGTH
DO YOU KNOW THAT
SOUTH AFRICA
is not only by far the largest producer of gold, but also a great agricultural country, exporting wool, fruit, sugar, and dairy products: that chrome and manganese for armaments are also valuable exports.
THESE ARE THE SINEWS OF WAR
THE EMPIRE'S STRENGTH
DO YOU KNOW THAT
INDIA
supplies all the jute for making sacks and sandbags: that more than half Britain's needs of livestock foods come from India as well as tea, rice, hides, skins, cotton and manganese.
THESE ARE THE SINEWS OF WAR
THE EMPIRE'S STRENGTH
DO YOU KNOW THAT THE
COLONIES
produce over half the world's rubber and a third of the tin: that they are rich in sugar, tea, coffee, cocoa and fruits: that Colonial copper, gold and oil are increasingly important.
THESE ARE THE SINEWS OF WAR

Three of a series of six posters in "The Empire's Strength" series, which have been designed by the Ministry of Information primarily for distribution in the United Kingdom to portray the contribution of the Dominions and the Colonies, and the part which the Empire is playing in the national effort

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

CANADA

The First Quarter's Gross Earnings

Canadian railway gross earnings for the first quarter of 1940 reached the highest level for that period since 1930. For the gross earnings of the Canadian Pacific and Canadian National Railways, taken together, amounting to $89,009,000—as compiled from interim reports issued by the two systems—showed an increase of approximately $18,500,000 or over 26 per cent. higher than a year ago. In the past month the margin of increase was not quite so good as in the two preceding months, but as the table below shows it was 18 per cent.—as compared with 33 per cent. in February and 28½ per cent. in January—higher than in the corresponding month in 1939.

This figure of $89,009,000 for the first quarter of this year makes interesting comparison with the $54,151,000 for the same quarter in 1932, the lowest of the depression years, the increase on that comparison being more than 64 per cent. But the highest earnings ever recorded for this quarter were $119,981,000 in 1929, 25 per cent. higher than this year's figure. Comparative figures follow :—

	1939	1940	Increase per cent.
	$	$	
March	25,084,000	29,528,000	18·0
February... ...	22,263,000	29,636,000	33·1
January	23,194,000	29,845,000	28·6
Totals ...	70,541,000	89,009,000	—

The following tabulation shows first quarter gross earnings for each year back to 1929 :—

	$		$
1940... ...	89,009,000	1934... ...	64,754,000
1939... ...	70,541,000	1933... ...	54,151,000
1938... ...	71,389,000	1932... ...	68,175,000
1937... ...	76,644,000	1931... ...	83,276,000
1936... ...	69,564,000	1930... ...	102,441,000
1935... ...	64,835,000	1929... ...	119,981,000

New Trans-Continental 45-Day Tourist Tickets

To stimulate the greatly increased tourist traffic that is confidently expected during the coming summer, cheap 45-day rail excursions will be run daily between eastern and western Canada from May 18 to May 29. Fares will apply from the Maritime Provinces, Quebec, and points in Ontario such as Windsor, Sarnia, Sault Ste. Marie, Sudbury, Capreol, Cochrane, and the east of these places, and to destinations including Port Arthur, Armstrong, and all points west thereof as far as the Pacific Coast. The tickets will be available for travel in coaches, and also in tourist, parlour or standard sleeping cars on payment of slightly higher fares plus the price of parlour or sleeping car accommodation. Break of journey in Canada will be permitted at any point *en route* on either outward or return journeys, or both, within the limit of the ticket. Breaks of journey in the United States at Chicago, Sault Ste. Marie, Mich., and the west will be in accordance with tariffs of the U.S. lines. Unless otherwise shown, tickets will be available *via* Port Arthur, Armstrong, Ont., Chicago, or Sault Ste. Marie, Mich., both outward and return. There will be also similar excursions from west to east during this period.

The Rolling Stock Industry in 1938

The Dominion Bureau of Statistics reports that production from the railway rolling stock industry during 1938 was valued at $80,977,701, a decline of 14 per cent. from the total of $93,854,555 in 1937, but still 30 per cent. above the 1936 output, valued at $56,969,453. Products made during the year included 5,149 freight cars, valued at $17,719,154 ; 236 passenger cars at $5,873,599 ; 49 locomotives at $5,635,134 ; railway car wheels, valued at $3,089,971 ; brakes and parts at $592,846 ; 695 narrow-gauge cars at $314,672, and castings or forgings made for sale at $1,376,603. The value of the work done as repairs on cars and locomotives totalled $27,497,472.

Application for the Abandonment of the Joliette—Cushing Line

Application is being made at St. Jerome to the Board of Transport Commissioners for the abandonment of about 56 miles of line between Joliette and Cushing junction in the Lachute sub-division. This section once was part of the Ottawa—Quebec line, and the first train ran over it in the autumn of 1910. The service was popular with hockey teams and legislators travelling between the Federal and provincial capitals.

When the C.N.R. took control of the Canadian Northern and Grand Trunk Railways, passengers between Ottawa and Quebec travelled *via* Montreal, and the line *via* Cushing junction and Joliette gradually fell into disuse. Then when the Tunnel Terminal line was built, traffic was diverted by that route, and the line to Joliette was used on only three days a week, the one train each way taking several hours for the trip. The Hawkesbury—Ottawa end of the line was abandoned last year. Farmers took back their land on the right of way, and a dozen railway crossings were eliminated.

More Lines Closing

The Board of Transport Commissioners of Canada on April 22 granted the application of the Canadian National Railways for leave to close, as from August 1, the St. Martins sub-division in New Brunswick between Hampton and St. Martins, a distance of 28·75 miles.

The board, in another judgment, granted the application of the Dominion Atlantic Railway to discontinue operation of the regular passenger service on its North Mountain branch in Nova Scotia from Centreville to Weston, with effect from April 30. The Dominion Atlantic Railway is leased to the C.P.R. for 99 years from January 1, 1912, and its total route-mileage is 304, including the branch now being closed for regular passenger traffic.

Canadian Railways and the World's Fair

The C.P.R. and C.N.R. are again exhibiting at the New York World's Fair this summer.

UNITED STATES

New York—Boston Hourly Service

With the new timetables effective with summer time on April 28, the New Haven Railroad inaugurated an every - hour - on - the - hour express train service between New York and Boston, beginning at 7 a.m. Eastern standard time (8 a.m. local time) and ending at 5 p.m. (6 p.m. local time). The schedules of all express trains between the two cities were shortened, the fastest to 4 hr. 15 min. for the 229 miles. Hourly-on-the-hour services have been a characteristic of Pennsylvania operations between New York and Philadelphia for many years. A few years ago a similar service was also inaugurated by that railroad between New York and Washington (departures on the hour from Washington and on the half-hour from New York, to prevent conflict with the even-hour departures for Philadelphia from New York). Experience indicates that a simple timetable which can be expressed thus in an easily-remembered phrase is an effective builder of patronage.

Amongst other accelerations announced in the summer timetables, perhaps the most notable is that of the New York Central Ohio State Limited between New York and St. Louis, by 1 hr. 12 min., making the journey of 1,156·6 miles in 19 hr. 23 min., or at approximately 59·7 m.p.h. The Pennsylvania is also accelerating its services between New York and St. Louis, and one of its trains gives an early morning arrival in St. Louis, not hitherto available. Henceforward, a passenger will be able to leave New York at 1.45 p.m. and arrive at St. Louis at 8.40 a.m. the next day ; or leave New York at 4.20 p.m. and arrive at St. Louis at 12.43 the next noon.

Automobiles for Train Travellers

The Eastern railways are inaugurating a "drive-yourself" motorcar service, similar to that which the Western lines have already instituted. Under this plan, passengers arriving by train will be able to hire motorcars at most important cities at a charge of $3 a day, plus 5 cents for every mile the rented vehicle is driven ($4 a day and 6 c. a mile in New York). The purpose of the new service is to meet the competition of private motorcars which many commercial travellers use in lieu of trains,

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not because of preference, but because a motorcar is necessary to them at destination.

Transport Legislation Expected Soon

The long-awaited transport legislation in Congress has now been approved by the conferees named by the Upper and Lower branches, and formal passage of the measure is expected within a few weeks, unless some unlooked-for opposition develops. The principal provisions of the prospective legislation are the regulation of water carriers (with important exemptions) on the same basis as the railways and motor lines are regulated by the Interstate Commerce Commission; and the naming of a three-member board to report on the comparative economy of the several forms of transport.

Potentially, this proposed board—which would have something of the characteristics of a Royal Commission under the British method of dealing with such questions—might be the most important provision of the new legislation; as it is now generally realised that regulation of transport rates is only a part solution to the difficulties of the railways. Most of the competition which has taken traffic from the railways is not that of for-hire hauliers, either by motor or by water, but rather that of traders who operate their own vehicles or vessels. Rate regulation, of course, has no effect upon the operations of such carriers. The only step which can be taken to minimise their inroads into railway traffic is to require them to pay more adequately than they now do for the costly transport plant provided for them, either free of cost or at very low levies. The proposed inquiry would be the initial step in that direction.

ARGENTINA

Suggested Cheaper Freights for Maize and Cotton

In view of the low prices at present ruling for maize, the new Minister for Agriculture, Dr. Cosme Massini Ezcurra, has been approached by the growers for assistance in marketing the crop, either in the form of a basic price or reduced railway freights; the authorities are reported to favour the second course. In compliance with his promise to the growers and after discussing the matter with the representatives of the railways, the Minister of Agriculture has addressed a note to his Public Works colleague, Dr. Luís Alberto Barberis, requesting his co-operation in obtaining a reduction in the maize freights. The note points out that the marketing difficulties brought about by the outbreak of war in Europe have increased the importance of cheaper railway freights for the transportation of grain to the ports of shipment. If such a concession could be obtained from the railways, it was thought probable that such non-producing areas as the Cuyo provinces, Patagonia, and other districts, would be induced to consume greater quantities of maize. Reduced maize rates would also be of ultimate advantage to the railways themselves, by facilitating the disposal of the crop, which would mean an increased volume of freight.

The Minister of Agriculture is reported to be complying with a similar undertaking given to the cotton growers, with respect to the low prices at present ruling for this commodity.

B.A.G.S.R. and Provincial Government's Debts

As already reported in THE RAILWAY GAZETTE, the refusal of the B.A.G.S. and B.A.W.R. to grant any further transport credit to the Buenos Aires Provincial Government—in view of the huge sum which it already owed to these companies and which they were unable to collect—led to an arrangement by which the local Government had agreed to settle all its accounts regularly from January 1 of this year, within a month of their being presented, and to pay interest at the rate of 6 per cent. per annum in future. Now it has been announced that the Provincial Attorney-General, Dr. Julio Sanchez Viamonte, has brought an action before the Provincial Supreme Court, demanding the annulment of the corresponding Decree on the grounds that it was illegal, especially as regards the high rate of interest fixed. Dr. Viamonte contended that Law No. 4538, which was invoked in the Decree in question, was inapplicable, as it referred to cases of a totally different kind.

Since the above-mentioned arrangement between the Provincial Government and the railways was arrived at, there has been a change in the constitution of the Government, the former Governor, Dr. Manuel A. Fresco, having been deposed by a Presidential decree, owing to notorious irregularities in his administration, and a Federal Interventor appointed for the purpose of straightening out the internal affairs of the Province.

INDIA

Preliminaries to Locomotive Building in India

There are indications that the Railway Board will decide to accept the recommendations of the experts for the building of new broad-gauge locomotives at Kanchrapara, on the Eastern Bengal Railway, and the transfer of all heavy repair work thence to Jamalpur, on the East Indian system. This decision is expected to be taken before the meeting of the Standing Finance Committee for Railways in June; subject to the committee's approval, a demand for a supplementary grant may be made during the autumn session of the Legislative Assembly.

Meanwhile, it is reported that preliminary arrangements are already being made to move the plant at present used for repair work at Kanchrapara to Jamalpur. This clearance will leave the former shops free for the most efficient layout of machinery and equipment required for locomotive building. It is also understood that preliminary designs are being prepared for the manufacture of jigs and fixtures required for new engine building.

CHINA

Western Chinese Railways

Mr. Chang Chia-gnau, Minister of Communications in the Government of China at Chungking, recently pointed out that during the last two years his Government had completed 635 km. of railways. This had been possible only by dismantling older railways in face of the Japanese advance in eastern China. He was referring particularly to the Hengchow—Kweilin—Liuchow line, that had been constructed towards the Indo-China frontier.

On other lines, such as the Yunnan—Burma, and Chungking—Chengtu railways, and lines in Kweichow, 4,000 km. of construction works had been completed, or were, at any rate, in hand. On the Burma line 25 per cent. of the earthwork, and 15 per cent. of the bridges, tunnels and drainage had been completed, and he estimated that about 30 per cent. of this great work was now finished. He hoped it would be entirely completed in three years or less.

French Yunnan Railway Modernisation

Incidentally, the Minister mentioned that the capacity of the French Yunnan Railway had been increased from 8,000 tons to 20,000 tons a month, the French owners having spent fr. 82,000,000 on a programme of modernisation. The cost of using this line was, he said, only one-half to one-third that of bringing goods by road from Burma, and there was little prospect of any major reduction in cost of carriage over that highway. The Japanese occupation of Nanning had only delayed traffic through Kwangsi, as they had a loopway round the occupied area in that province.

SPAIN

Improved Railway Share Values

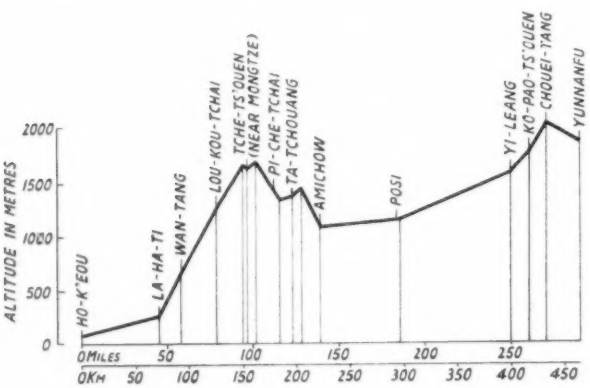
The progressive improvement in the economic position in Spain is shown by the advance in the quotations of State securities and industrial equities, on the Madrid bourse. The rise in railway share values in particular, is an example of this, and although the problem of the eventual destiny of the principal railway companies is still in suspense, pending the publication of the "definite statute," the 550-peseta ordinary shares of the Northern Railway Company, which had fallen in value to 63 pesetas in the difficult period immediately preceding the civil war, are now quoted at 210, and those of the Madrid, Zaragoza & Alicante Railway Company have risen from 52 to 185 pesetas in that period.

XUM

FRENCH INDO-CHINA—YUNNAN RAILWAY

This line, much in the news as the only railway feeding Chinese China, is owned and worked by the Compagnie des Chemins de fer de l'Indo-chine et du Yunnan

THE French Yunnan metre-gauge railway is the second largest line in French Indo-China, and was built with the idea of developing the trade from the Chinese province of Yunnan and the French territory adjoining, and of giving Yunnan an outlet to the sea. In 1897 the Chinese Imperial Government granted rights to the French Government to build a line of railway from Haiphong and Hanoi across the Indo-China frontier at Lao-kai towards Yunnan-fu, now called Kunming. The project, framed in 1903, laid down that the line was to pass through or near Mongtze, where there were tin



Longitudinal section of the portion of the Yunnan railway in Chinese territory. It begins just beyond Lao-kai and extends to Yunnan-fu, now known as Kunming

deposits. A loan was granted, without guarantee, by the French Government in 1898 for the construction of the line, estimated to have a total length of 862 km. (546 miles). The Haiphong—Lao-kai section cost about fr. 203,500 a km. Considerable difficulty was experienced in finding a suitable route. The idea first was to follow the Red river to Man Hao, then its tributary the Sin Chien, reaching Kunming *via* Mongtze, Lingan-fu and Sinning Chow, but the very bad climatic and topographical conditions led to this alignment being abandoned. The finally selected alignment ran from Mongtze *via* Kai Yuen, and Pouo Hi, and was agreed to by all parties in 1904. This route goes through tropical jungle in French territory, crosses the Red river at Lao-kai, then follows the valley of the Nam Ti river to Tche-Ts'ouen, and proceeds thence by way of the valleys of the Pa Ta Ho and Ta Chan Ho. The work even then was extraordinarily difficult. For three years, from 1903 to 1906, whole fleets of junks were needed to bring the material up the Red river from Hanoi to Lao-kai, until the line reached the latter place. The work was directed from Mongtze, in Chinese territory, also at first served only by junk and mule transport. Surveying and demarcation continued until 1905, and construction work was begun the following year.

Climatic and Labour Difficulties

Some 1,000 to 1,200 engineers, foremen, and other Europeans, mostly Italians, were engaged to deal with the enormous army of coolies, numbering about 48,000. In the upper construction divisions the difficulties were not great, but in the valleys the extremely unhealthy climate led to considerable trouble, the lives of large numbers of coolies being lost, and thousands of others deserting. On the suggestion of a former engineer of the Peking—Hankow line, numbers of coolies were then brought from Tientsin, where they had been engaged in railway construction work. Some 6,000 arrived and, though hard-working and willing, they refused to work as soon as tunnelling began in the valley of the Nam Ti, as they were very superstitious and feared the revenge of the mountain gods. About 800 died of illness and the rest gradually returned home on foot. An attempt was then made to employ Cantonese, but without success. The position in the Nam Ti valley gave rise to much anxiety, as work was progressing well on other divisions, and finally in 1906 7,500 workmen from Annam were engaged.

They were not very efficient but they worked steadily and it later proved possible to get men from Tongking and Kwangsi also. A service road was made, along which railway materials and the food for the men were brought by pack animals. Political difficulties were also encountered. Before the rainy season set in in 1908 unrest broke out in Houkou. The insurgents marched along the railway roadbed to Mongtze, but were met there by Chinese troops. As the brigands were Kwangsi people, the Yunnan Government believed the Kwangsi coolies on the line to be in a conspiracy with them and caused many to be shot. Consequently large numbers of others deserted, and the French company again found itself in great difficulties. Not till 1909 was this part of the line completed, and the first locomotive reached Kunming in January, 1910; the whole railway was opened for traffic on April 1 of that year, under French management. The Chinese Government put the land at the company's disposal and maintains a police force to protect the railway. The 1903 agreement stipulated that the line should pass to China after a period of 80 years, against compensation for such invested monies as remain uncovered by repayment from receipts.

A 2-ft. Gauge Branch Line

In 1915 the Chinese Government began the construction of a 60 cm. (2 ft.) gauge light railway from Mongtze to Ko Kieou and Shih Ping, to connect with the tin mines—worked there since 1707—which deliver about 12,000 tons per annum. This branch line, 69 km. (43 miles) long, was finished in 1928 and is known as the Kokiu Piseh Railway. It has now been extended *via* Lingan-fu from Tsi Kay to Shih Ping. The capital, four million dollars, was raised in China from provincial funds.

The Main Line

The Yunnan line itself is 862 km. (546 miles) long, 398 km. (247 miles) being in Tongking territory—of which 11 km (6¾ miles) near Gia Lam belong to the Trans-Indo-China Railway—the rest being in China. In the latter alone there are 3,628 engineering works, including 107 viaducts and bridges over 20 m. (66 ft.) long, and 172 tunnels, totalling 20 km. (12½ miles) in length. The route climbs from the sea level at Haiphong to a height of 2,025 m. (6,644 ft.) on the Yunnan plateau. The steepest gradient is 2·5 per cent. (1 in 40), and the sharpest

curve 100 m. (328 ft.) radius. The track consists of flat-bottom rails weighing 30 kg.p.m. (60 lb. per yd.). There are 80 locomotives, of various types, built by the Société de Construction de Batignolles. The coaches are of bogie type, and the goods wagons carry 10 tons. The main workshops are at Gia Lam, with smaller ones at Phoi Moi and Amitschou. A type of French Micheline railcar on pneumatic tyres runs on the Chinese section of the route and enables the run from Hanoi to Kunming to be made in 22 hr., at an average speed of 35 km.p.h. (22 m.p.h.). Between Hanoi and Haiphong an older type of car runs. There are 44 stations on the line.

Receipts have risen steadily since 1935, as follow:—

1935	3,945,947 piaster	4,593 per km.
1936	4,504,127 piaster	5,243 per km.
1937	6,002,954 piaster	6,988 per km.

(1 piaster equals 10 francs)

About a quarter of the receipts are from passenger traffic. In 1937 there was a surplus of 2,320,143 piaster, the operating ratio being 53 per cent. In 1938 the traffic increased still further. The daily goods service amounts to about 4 goods trains daily, each carrying only about 75 *tonnes*, or 300 *tonnes* a day, from Haiphong to Kunming.

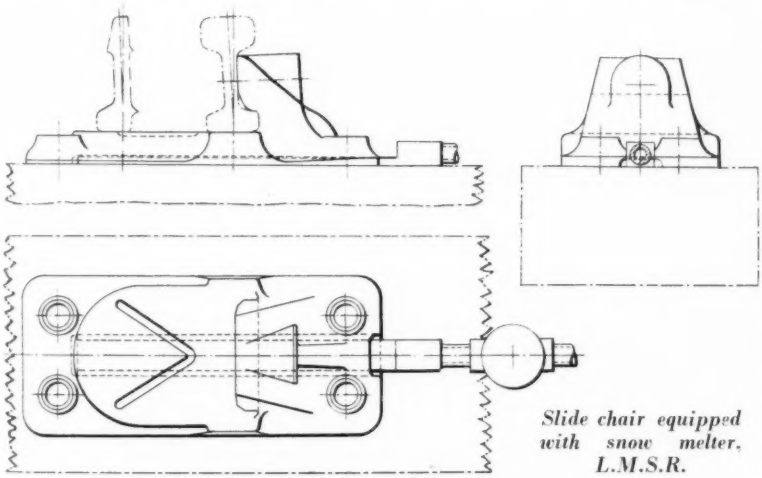
ELECTRICAL SNOW MELTERS FOR POINTS, L.M.S.R.

An economical device which gave satisfactory results in the severe conditions early this year

AN interesting experiment on the L.M.S.R. at Buxton, with the object of keeping railway points in free working condition during frost and snow, has given very satisfactory results during the exceptionally severe winter conditions experienced early this year.

Electrical snow melters have been used previously, notably in Italy and the United States, in which long tubular heaters are secured along the side of the point blades and the stock rails. This is an easy matter with flat-bottom rails, but the problem is not so easy of solution when dealing with British Standard construction owing to the presence of the chairs and keys, which prevent the use of tubular heaters, unless divided into a number of short separate units. This would have the effect of heating the rail between the slide chairs, whereas the heat is required mainly on the slide chairs, and conduction between the rail and the chairs would be very poor.

In the installation under review, three sets of points were fitted with slide chairs specially cast with a cavity underneath, and heaters in sheaths of Monel-metal to avoid corrosion were inserted in the cavities. Five chairs on each rail—ten per set of points—were so fitted; all the heaters for each set of points were joined in series, and the whole controlled by a switch in the signal box.



Slide chair equipped with snow melter, L.M.S.R.

It was found that a loading of 200 watts—*i.e.*, 2 kW. per set of points—was sufficient to deal with a 2-ft. fall of snow, and the points were kept quite free. Also on many occasions during severe frost when the points began to work stiffly, the signalman switched on the heaters for about 10-15 minutes and thus kept the points in working condition when men had to be called out to free other points which were not equipped with snow melters.

Another advantage gained was the absence of corrosion usually experienced when salt is used to melt the snow, and a corresponding saving in maintenance necessary to clean away the salt and apply fresh oil after the snow has been melted.

The heaters were made by Geo. Bray & Co. Ltd. of Leeds to the design of the L.M.S.R.

A Super-Locomotive of 1926

When the Baldwin Locomotive Works became ready in 1926 to build the engine which would bear their output number 60000, the late Samuel Vauclain suggested that to commemorate the occasion the firm should design a special locomotive in the hope of obtaining orders for the type from the American railways. At a time when the compound principle was not popular in America, and the crank axle as a feature of locomotive construction was regarded there as something to be shunned, the decision was reached to build the engine as a three-cylinder compound, having one h.p. cylinder between the frames driving the crank axle of the second pair of coupled wheels and two outside l.p. cylinders in line with it driving the third pair. The wheel arrangement was 4-10-2 and the boiler carried a working pressure of 350 lb. per sq. in. Tested on the Pennsylvania plant at Altoona, No. 60000 reached the capacity of the plant at the relatively low speed of 37½ m.p.h. when it developed 4,515 i.h.p. The water tube firebox proved capable of evaporating over 84,000 lb. of water an hour. Later, when tried out under severe conditions on the Pennsylvania main line it hauled trains weighing 7,000 tons behind the tender with marked success and economy. Despite further successful trials on several railways and under varying conditions the dislike of American railway engineers for any avoidable complication was not overcome and the locomotive found a final resting place in the Franklin Institute Museum at Philadelphia.

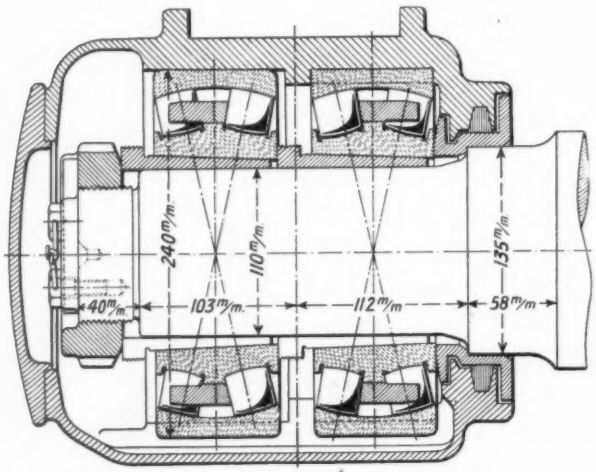
XUM

ROLLER BEARINGS ON NEW ZEALAND LOCOMOTIVES

Details of roller bearings on new 4-8-2 type "J" class locomotives, New Zealand Government Railways

IN the article on the new 4-8-2 type locomotives of the New Zealand Government Railways which appeared on page 410 of THE RAILWAY GAZETTE of March 22 last, reference was made to the fact that roller bearing axleboxes are fitted to all the wheels of the engine and tender, and in view of the importance of this feature we now reproduce drawings and append particulars of the bearings used.

For many years, SKF roller bearing axleboxes have been used by the New Zealand Government Railways for the carrying axles of their "K" class 4-8-4 locomotives with double bogie tenders, and last year the construction of 41 further 4-8-4 engines was begun in the railway workshops in New Zealand on which the use of the same make of bearings was extended to the driving and coupled wheels. These new engines are 35 of the "Ka" and 6 of the "Kb" classes (the latter having boosters). Certain equipment for these engines was obtained from the Vulcan Foundry Limited, Newton-le-Willows, including the supply of the axles and wheels fitted throughout with SKF roller bearing axleboxes. The 40 "J" class 4-8-2 locomotives

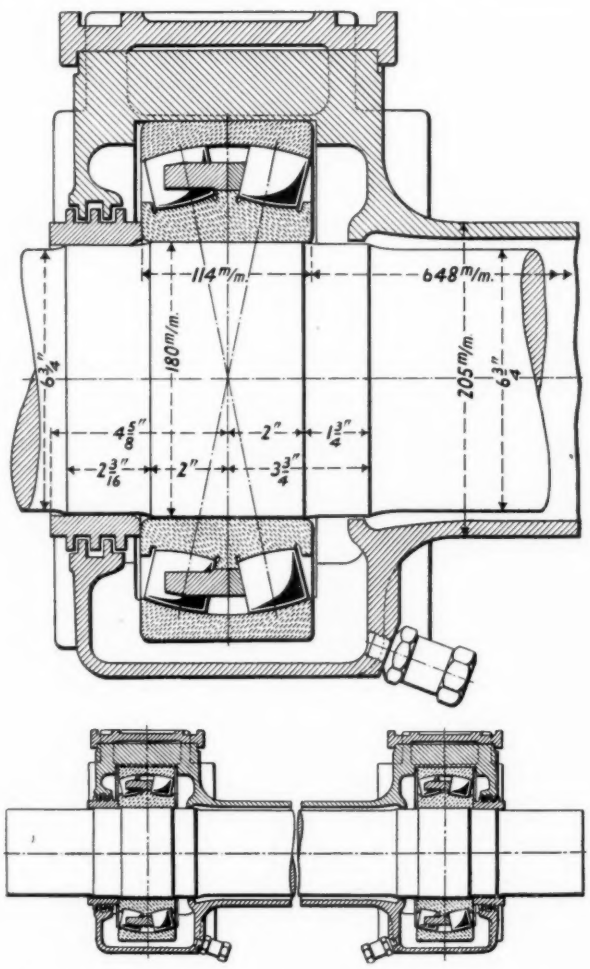


Section of SKF roller bearing axlebox for engine bogie and tender wheels

recently completed by the North British Locomotive Co. Ltd. provide additional evidence of the confidence which the New Zealand Government Railways have in the use of anti-friction bearings for locomotives.

In these locomotives the leading engine bogies and the tender bogies are fitted with axleboxes of the same design, each incorporating two spherical roller bearings secured to journals 110 mm. diameter by tapered withdrawal sleeves, and the axlebox is in halves, ensuring accessibility to all parts for inspection and cleaning. The axleboxes are fitted with 11 per cent. to 14 per cent. manganese guide liners $\frac{1}{4}$ in. thick, which are in rubbing contact with self-oiling Mintex liners fitted to the frame cheeks. The equaliser beams rest on 11 per cent. to 14 per cent. manganese plates placed on the top of the cast steel axleboxes.

The roller bearing mountings of the driving and coupled axles are worthy of special mention. The bearings are shrunk on the journals, which are 200 mm. diameter for the driving axles, and 180 mm. for the leading, intermediate and trailing axles, and are located in relation to the wheel boss by means of a spacer ring, which also embodies baffle tongues for sealing purposes, in conjunction with corresponding grooves in the axlebox. No location collars or axle shoulders are provided against the inner faces of the roller bearings. End location of the cannon type axlebox is effected between the inner faces of the outer races of the bearings, therefore the lateral thrust loads carried by the roller bearing are imposed towards the wheel boss. This method of mounting enables the axle to be well proportioned without the necessity for the provision of location shoulders against which, in previous practice, it has been the policy to register firmly the bearings and fittings endwise in relation to the wheel. This practice, it has been found, leads to the concentra-



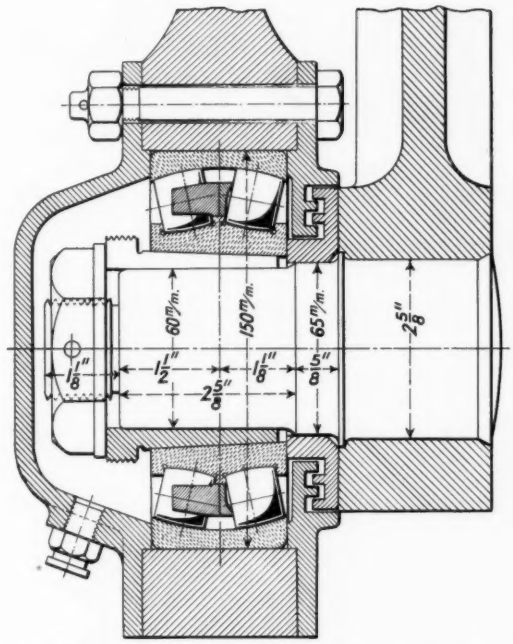
Sections of SKF cannon type roller bearing axlebox for coupled wheels

tion of skin stresses, when the wheels, roller bearings, and sealing collars are registered against a shoulder under the pressure of the wheel press, due to the slight inaccuracies in relative squareness of the faces of these parts. Furthermore, the registering of these fittings endwise against a shoulder gives extreme rigidity to the axle.

Mounting on the Axle

The method now adopted enables the bearings to be shrunk on the axle seatings, independently of the adjacent fittings, and the shrinkage fit obtained provides sufficient interference to safeguard against movement of the race under radial and thrust loads. A clearance of approximately 0·010 in. is given between the wheel boss and the face of the axlebox sealing collar, so that the fits of the bearings and the collars are not disturbed when the wheels are pressed on to the axles. A recess is turned in the back face of the wheel boss, also with the object of slightly relieving the fit, and safeguarding against disturbance of the skin of the axle when pressing into the wheel. This reduces the possibility of axle fractures developing from the position at the edge of the wheel boss.

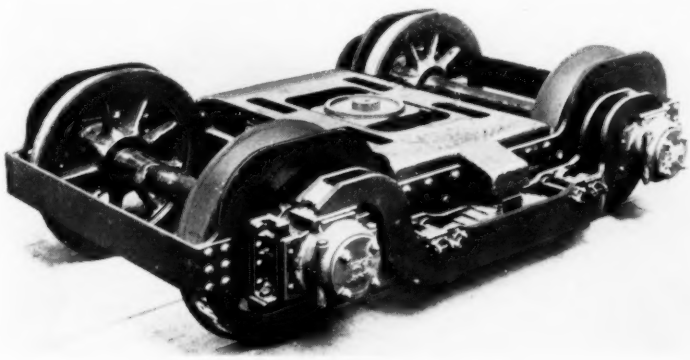
The cast-steel axleboxes are framed in halves, enabling the axle fittings to be assembled independently of the box, and also permitting accessibility of the bearings for inspection. The axlebox guides are fitted with $\frac{3}{8}$ in. thick 11 per cent. to 14 per cent. manganese liners, which are ground to size on the wearing faces when in position on the axleboxes. These liners are in rubbing contact with an adjustable steel wedge block fitted on the front face of the horn guide and a steel liner on the trailing face, and both the wedge block and the liner are case-hardened and ground. Wearing plates of SKF ball bearing chrome steel are placed on the top of the axleboxes under the spring shoes. The two-wheeled hind truck of the radial type consists of a triangular frame to which the axleboxes are bolted. These axleboxes are of the solid type and are each fitted with one spherical roller bearing mounted on a tapered withdrawal sleeve, to a journal of 115 mm.

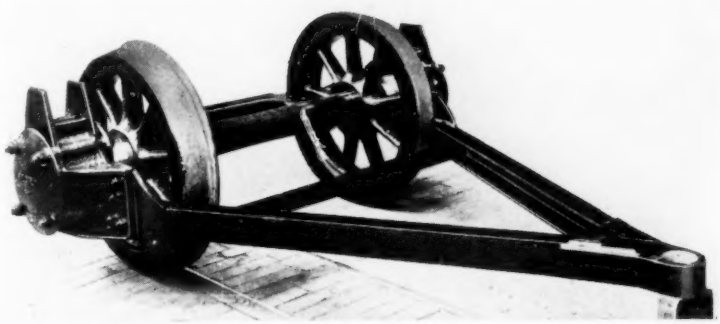


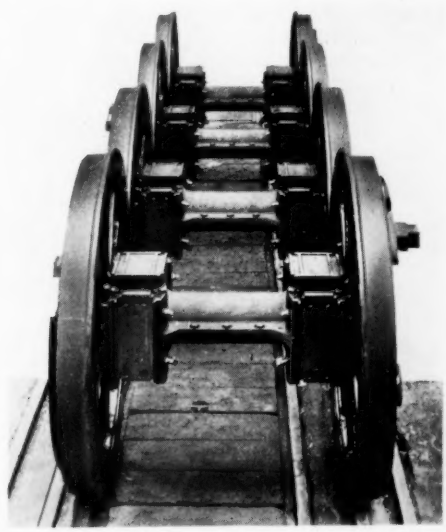
SKF spherical roller bearing applied to return crank

diameter. The self-aligning properties of the roller bearing with this mounting ensures correct load distribution over the rolling elements, and a certain amount of latitude in the alignment of the framework, to which the axleboxes are securely fixed, is permissible with this mounting.

All these axleboxes are lubricated with a soda base grease; for the carrying axles replenishment of grease will be necessary only when the axleboxes are inspected during the major overhauls in the locomotive shops and sheds. With respect to the cannon axleboxes for the driving and







Above : Cannon type axleboxes of coupled wheels
Top left : Leading bogie of engine
Below : Trailing two-wheeled truck

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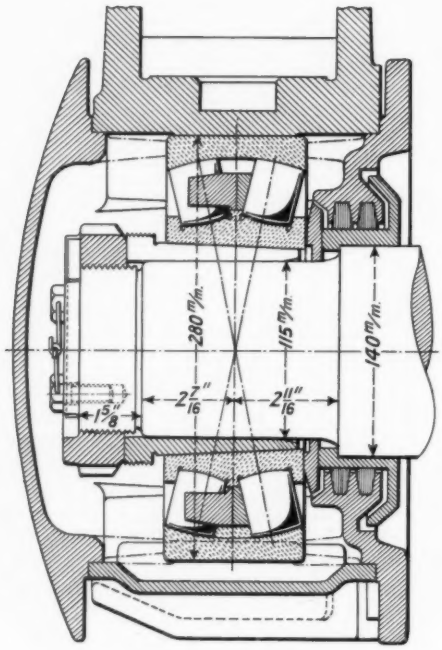


Section of SKF roller bearing axlebox for trailing truck

coupled wheels, provision has been made by the fitment of grease nipples, for a charge of grease to be made to the bearings during service, to compensate for any leakage which might be experienced. These axleboxes are also fitted with lubricating nipples for the purpose of charging grease to the guide liners. In addition to the applications described above, SKF spherical roller bearings are fitted to the return cranks of the valve motion.

The application of roller bearings throughout these new engines will increase the permissible mileage between major overhauls. The starting resistance of the roller bearing being only 15 per cent. of that of the plain bearing, there will be an effective reduction in the initial tractive effort required. As no measurable wear occurs on the rollers and tracks, the initial bearing clearance is permanently maintained, thereby reducing to a minimum the pounding effects of the coupled axles, which, with the roller bearing boxes, can be influenced only by wear in the hornways. The use of the wear resisting liners described will assist in the maintenance of fairly constant clearances in the guides between each adjustment of the wedges during overhauls. The life of the tyres should be lengthened by the reduction in wheel slipping, due to the easier starting. The dual-purpose SKF spherical roller bearing is designed to carry both radial and thrust loads, with a friction coefficient in the region of 0·0015, which remains practically constant under all conditions. By the elimination of thrust collars, particularly on the smaller diameter bogie wheels, the hot bearing problem resulting from inadequate lubrication of the thrust faces is overcome.

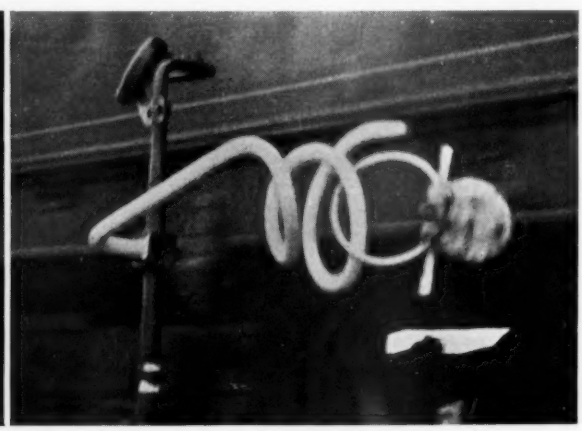
NEW TOKEN EXCHANGING APPARATUS IN N.S.W.

This automatic exchanging apparatus is working satisfactorily at speeds of over 70 m.p.h.

WITH the introduction of accelerated services on the single line sections of the New South Wales Government Railways it has been found necessary, in order to avoid the checking of speed when passing through an electric staff or tablet station, to improve the design of the automatic staff and tablet exchanging equipment. The improvement has made possible the maintenance of speeds up to 70 m.p.h. when passing through these crossing stations and exchanging the staff or tablet.

For experimental tests, a 3-mile straight and level stretch of track was available. The first type of exchanger tested was of the " ram's horn " design, the horn having only one convolution on which the steel ring attached to the pouch containing the token was received. The exchangers fitted on the engine and on the ground were of similar design. Exhaustive tests were made under the supervision of the Signal & Telegraph Engineer and the Chief Mechanical Engineer, but it was found that at speeds in excess of 50 m.p.h. the results were erratic and the steel ring on the pouch was frequently distorted or broken. Both solid and stranded rings were tried, also various grades of steel, but the results were not satisfactory, and

Electric train staffs being exchanged at 20 m.p.h.



Miniature electric staff being exchanged at 76 m.p.h.

NEW STANDARD AUTOMATIC TOKEN EXCHANGING APPARATUS IN N.S.W.

it was eventually decided that something would have to be done to reduce the strains set up by the heavy impact and the sudden change from straight line to gyratory motion.

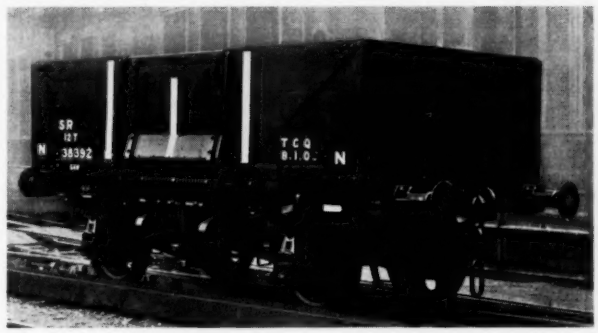
After a number of experiments, a new type of horn was evolved which has given satisfactory results at speeds up to 76 m.p.h. From the accompanying illustrations it will be seen that an additional convolution has been provided on the horn, which now takes the shape of a conical spiral with the greatest diameter near the point of the horn. The horns are made of spring steel, and the pouch rings of a special alloy steel. The effect of this arrangement is to produce a more gradual transition of the movements involved, so that by the time the ring with its pouch and token attached has traversed the two convolutions the energy generated has been absorbed and the token comes to rest without shock. The wide convolution also has the effect of reducing the initial impact.

NEW SHOCK ABSORBING WAGONS, SOUTHERN RAILWAY

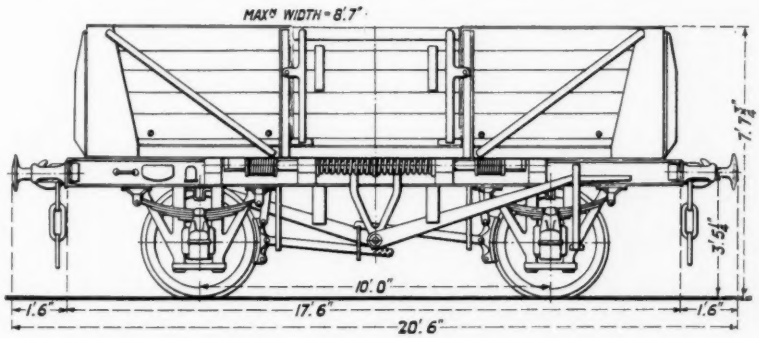
Ashford-built open vehicles for the conveyance of fragile goods

TWELVE open goods wagons equipped with shock absorbing fittings are being built at the Ashford works of the Southern Railway to the design of Mr. O. V. Bulleid, the company's Chief Mechanical Engineer. The vehicles will be employed for the conveyance of fragile goods, and the arrangement embodies the principles of the shock absorbing wagons introduced on the British railways by the London Midland & Scottish Railway; these were illustrated and described in THE RAILWAY GAZETTE of August 20, 1937.

The bodies of the new vehicles conform generally to the latest designs of the railway companies' standard 13-ton open goods wagons and their dimensions are shown on the diagram. The wagons are of interest as they show what can be done to overcome the present shortage of soft timber by using home-grown green oak planking for the body, floors and sheeting. The oak was broken down into 4-in.



One of the new shock absorbing wagons, Southern Railway



Overall dimensions of shock absorbing wagons, Southern Railway

planks from the log six months ago. Of the wagons to be constructed, eight will have bodies of green oak and four of British Columbian pine (Douglas fir). In order to keep the tare weight of the respective vehicles comparable, the oak sheeting is made 1½ in. thick for the sides and 1⅜ in. thick for the floors, instead of a uniform thickness of 2⅜ in. for the British Columbian pine. The resulting tare weights of the wagons with green oak and British Columbian pine are 8 tons 1 cwt. and 8 tons 0 cwt. 2 qr. respectively. The construction of six covered goods wagons also embodying the shock-absorbing principles will shortly be undertaken by the Southern Railway.

Light Alloys in Rolling Stock

At the recent Light Metals Conference held in Milan several papers referred to the application of aluminium alloys to railway rolling stock. A representative of the Breda Company stated that in the last two years his organisation had used over 1,000 tons of light alloys for railway coaches and trams, at least half of which comprised aluminium sheet of 99½ per cent. purity. Light alloys for such applications had to be capable of withstanding not only static stresses but also dynamic loadings resulting from impact and vibration. They were subject to corrosive influences from ammoniac fumes in the toilet compartments, to sulphurous smoke in tunnels, and to salt-laden air near the coast. Moreover, they had to be readily worked by casting or forging and must be capable of being secured by either riveting or welding. Aluminium alloys could hardly be applied to stress-bearing parts of a carriage structure without radical modifications in design, as they had too low a modulus of elasticity. For example, a light alloy girder for a given load would probably show three times the deflection of a similar girder in steel. The necessity of fewer and standardised specifications was stressed at the congress. One speaker said the present specifications covered 28 alloys used by 186 firms. Four of these specifications accounted for an aggregate consumption of over 8½ thousand tons, five showed consumptions of but a few hundred tons, and the remaining 19 were used only to the extent of a dozen tons or so.

XUM

DERAILMENT OF NEW YORK—CHICAGO EXPRESS

The derailment at 59 m.p.h. of the Lake Shore Limited, one of the New York—Chicago expresses of the New York Central System, on a 6-deg. (14½-ch.) curve, at Little Falls, and its almost immediate collision with a rock wall, caused the death of 30 persons

THE Lake Shore Limited, one of the New York—Chicago expresses of the New York Central System, was derailed on the sharp curve at Little Falls, 216 miles from New York, at about 11.30 p.m. on Friday, April 19, causing the death of 30 persons, including 5 members of the crew. About 40 others were detained in hospital. There were 208 passengers on the train in addition to the crew.

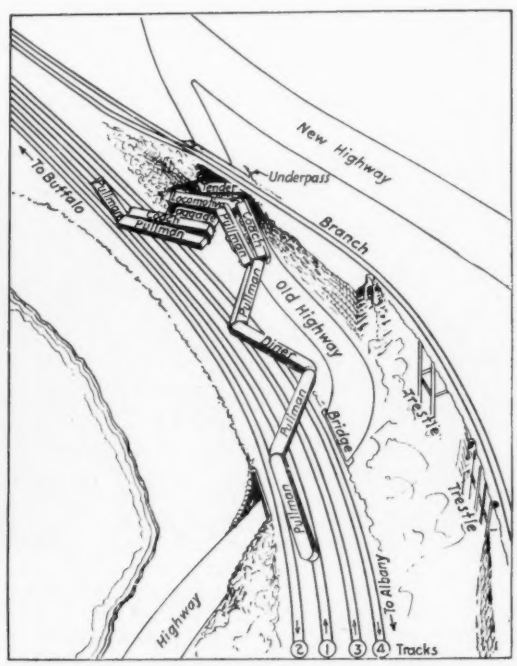
The accident occurred as the train was passing round the 6-deg. (14½-ch.) Gulf curve, about ¼-mile east of Little Falls station. There are four tracks at the spot, of which Nos. 1 and 2 are used by passenger trains, and Nos. 3 and 4 by freight trains. On the south side of the line is the Mohawk river, and on the north there is a highway, above which, supported on a stone and rock wall, is the single-line Dolgeville branch. The highway passes under this branch by a skew bridge immediately beyond the end of the curve.

The locomotive, No. 5315, a "J1c" class 4-6-4, built in 1931, was hauling 15 cars in the following order from the tender: 2 baggage-express cars, 2 coaches, 4 Pullmans, 1 diner, 4 Pullmans, and 2 coaches. They were all of standard all-steel construction. When the train was near the west end of the curve, the locomotive, for a reason not yet published, left the rails, crossed the two freight tracks, and crashed into the rock wall just beyond the bridge which carries the Dolgeville branch over the highway; it reared up and fell over. The impact caused the boiler either to burst or become punctured. The tender was jammed under the highway bridge. The fireman was thrown on to the highway and the engineman was pinned in the cab; both were killed. A locomotive foreman riding in the cab was severely injured. The site and the condition of the train after the accident are shown in the diagram reproduced from our American contemporary the *Railway Age*, from which these notes also are extracted.

An extraordinary feature of the accident was that the baggage-express car immediately behind the tender became detached altogether from the train, and continued along the line for about 200 ft. until it was brought to a standstill by the action of the automatic air brake. The next six cars followed the path of deflection taken by the locomotive. The second baggage-express car was crushed almost beyond recognition between the locomotive, a coach and a Pullman, and it was in these cars that the greatest loss of life occurred. A following coach and Pullman crashed head-on into the stone wall pocket formed by the abutments of the highway bridge. Behind these a Pullman, a diner and two other Pullmans took up a zigzag form across the line, destroying the track for about 240 ft. Most of the occupants of these cars escaped serious injury, and the last four cars remained on the rails.

The work of the breakdown crews was hampered by driving rain, which turned to snow, and by debris and fallen wires. The latter also interrupted telegraphic communication. Track No. 2 was reopened at 12.45 a.m. on Sunday and Track No. 1 at 2 a.m.

The official enquiry opened in Albany (73½ miles east of Little Falls) on April 22. According to the evidence of four surviving members of the train crew, including the conductor, the Lake Shore Limited left Albany 21 min. behind time and lost 2 more minutes between there and Little Falls. The self-recording speed-indicator on the locomotive showed that the speed-limit of 75 m.p.h. in force on the Mohawk division, had not been exceeded, and that the last speed recorded was 59 m.p.h. There is a restriction to 45 m.p.h. on the curve.

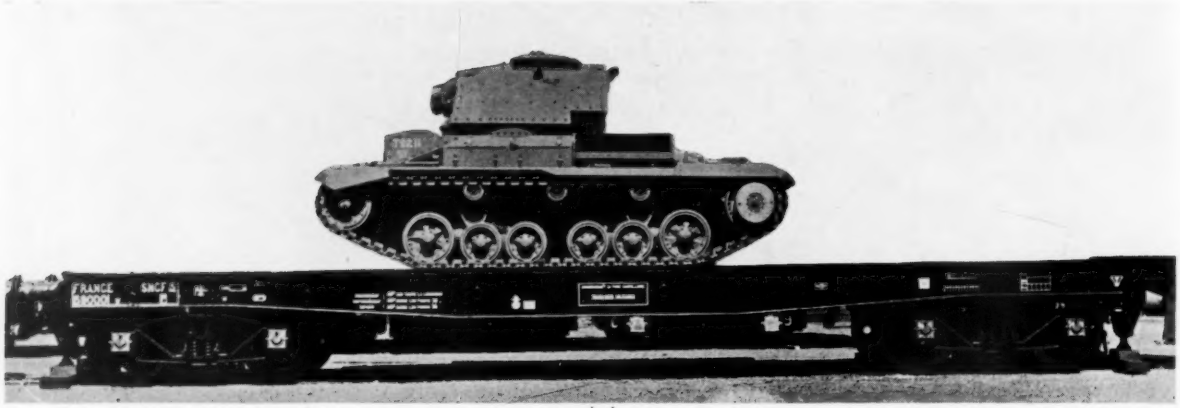


Above: Wreckage of 4-6-4 type locomotive No. 5315 in Little Falls accident, N.Y.C. System. Note rear projection of frame twisted back under cylinders. Right: Diagram of wreckage

Wreck of the Lake Shore Limited, New York Central System, after derailment on 14½-ch. curve at Little Falls on April 19, 1940
(*See diagram opposite*)

XUM

Railways and the War—20



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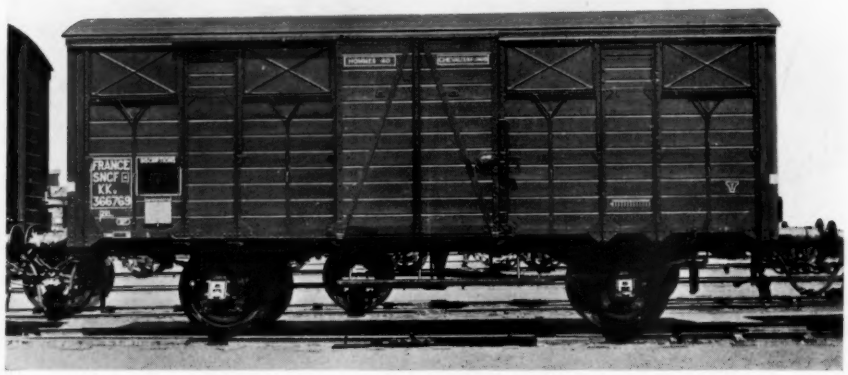
Above: Bogie flat wagon for military transport, one of a number being built in a Midlands works in Great Britain for the French National Railways Company. It is designed to carry a load of 45 tons distributed, or 30 tons at any point



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Right: One of the 20-ton covered wagons of French type now being built in this country for service in France in connection with the British Expeditionary Force

General view in the yard of a carriage works in the Midlands, showing in the foreground a train of 50 French-type 20-ton covered wagons, and in the background flat trucks for transporting military supplies

RAILWAY NEWS SECTION

PERSONAL

The King has approved the appointment of Captain the Rt. Hon. David Euan Wallace, M.C. (recently Minister of Transport) as Senior Regional Commissioner for the London Civil Defence Region. The other Commissioners for London, Sir Ernest Gowers and Admiral Sir Edward Evans, were appointed early last year. It will be recalled that, when the Regional Civil Defence scheme was announced early last year, it was indicated that there would ultimately be three commissioners for the London Region.

Mr. Frederick Montague, M.P., has been appointed Parliamentary Secretary to the Ministry of Transport.

Mr. F. Montague, Parliamentary Secretary to the Ministry of Transport, has appointed Mr. W. S. Cluse, M.P. for Islington (South division), to be his Parliamentary Private Secretary.

Mr. Geoffrey Lloyd has been appointed Secretary for Petroleum, the newly-created post which has been made in order to divide the duties hitherto discharged by the Secretary for Mines. Mr. D. R. Grenfell has been appointed Secretary for Mines.

CHIEF ROYAL ENGINEER

We regret to record the death on May 16 in his 98th year of General Sir Bindon Blood. We announced in our issue of May 3 that Sir Bindon had resigned his appointment as Chief Royal Engineer. He was born on November 7, 1842, and received his early education in Ireland. He passed into the Military Seminary of the East India Company at Addiscombe, shortly before that establishment was amalgamated with Woolwich, and was gazetted to The Royal Engineers in December, 1860. He went to India in 1871, and, after a short period of attachment to the Public Works Department, Bombay, was transferred to the Bengal Sappers & Miners. Some years afterwards, in 1885, Sir Bindon took command of this corps. His career had been one of the most distinguished in the Army and culminated in his reaching the rank of General in 1906 shortly before he retired. He became a G.C.B. in 1909, and a G.C.V.O. in 1932. The Office of Chief Royal Engineer was created in 1936 and restored an old military appointment originally styled "Chief Engineer of the Kingdom" which existed from the Restoration until its abolition in 1802. The holder is titular head of the Corps of Royal Engineers, and Sir Bindon had been senior Commandant since 1914. Lieut.-General Sir Ronald Charles, K.C.B., C.M.G. D.S.O., is the present Chief Royal Engineer.

We reproduce below a portrait of Mr. Francis Charles Buller, who, as we recorded in THE RAILWAY GAZETTE of May 3 and 10, is due for retirement from the position of Estate Agent, London Passenger Transport Board. Mr. Buller has completed 27 years of service, but he is not severing his connection with London Transport for the time being, as his services are being retained temporarily in connection with rating matters.

Photo] [Lafayette

Mr. F. C. Buller

Estate Agent, London Passenger Transport Board, 1933–1940

Mr. Terence Colin West, who, as announced in our issue of May 10, has been appointed Estate Agent, London Transport, obtained his training with a west end land agent. He joined the London General Omnibus Company in 1912 as Surveyor & Draughtsman to the Traffic Department. After four years of army service he returned to the Underground group of companies in 1919 and was transferred to the Estates Department. In 1923 he was made Rating Assistant and became Senior Assistant in 1935. He was made an officer of the board, with the title of Assistant Estate Agent, in 1937.

Mr. Alfred William Green, who, as announced in our issue of May 10, has been appointed Accountant of the London Passenger Transport Board, joined the Underground Electric Railways Co. of London Ltd. on January 1, 1905, after he had gained experience in the accountant's department of the British Thomson-Houston Co. Ltd. His first post with the Underground company was that of bookkeeper in the Accountant's office, which he occupied during the construction of the Bakerloo, Piccadilly, and Hampstead tube railways. When they were opened for traffic he became bookkeeper to these companies, and in 1913 Assistant to the Accountant. In 1921 he was made Statistical Officer of the Underground group of companies and, on the establishment of the London Passenger Transport Board in 1933, became its Accounts Officer.

Photo] [Lafayette

Mr. T. C. West

Appointed Estate Agent, London Passenger Transport Board

Mr. J. B. Burnell, who, as announced in our issue of May 10, has been appointed Divisional Superintendent (Central Buses), London Passenger Transport Board, served in the Royal Navy, retiring in 1920, with the rank of Lieutenant. He entered the service of the L.G.O.C. in 1926 and until 1929 he was a traffic observer attached to head office. From 1929 to 1935 he was Depot Superintendent, District Superintendent, and Acting Assistant Divisional Superintendent (Road & Depot). In 1935 he was made an Executive Assistant and was transferred to the Country Buses & Coaches Department. Since 1939 he has been in the office of the Staff Superintendent (Road Transport).

Mr. B. H. Harbour, who, as announced in our issue of May 10, has been appointed Secretary to the Chairman, London Transport, joined the service of the Metropolitan District Railway in 1913. In 1927 he was appointed to the Statistical Office of the Underground group of companies and in 1928 to the office of the Secretary & Treasurer of the

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Mr. A. W. Green

Appointed Accountant, London Passenger Transport Board

Mr. J. B. Burnell

Appointed Divisional Superintendent (Central Buses), London Transport

Mr. B. H. Harbour

Appointed Secretary to the Chairman, London Transport

group. From 1930 to 1933 he was attached to the office of the Chairman of the companies for duty with Sir Ernest Clark, who was a Director. On the formation of the board he was transferred to the Actuary's office and in 1935 he became assistant to the Actuary. In 1937 he was made Secretary to the Chairman of the board, Lord Ashfield, and in January, 1939, was appointed Secretary to the Standing Joint Committee of the board and the four main-line railway companies. Since the outbreak of war he has acted also as Secretary to the Vice-Chairman, Mr. Frank Pick.

Mr. F. C. Bentley, who, as announced in our issue of May 10, has been appointed Assistant to the Engineer-in-Chief, London Transport, was apprenticed as a mechanical engineer but with the development of electric railways turned to electrical work and joined the power department of the Central London Railway. Later he changed to the Underground group as technical assistant in the head office; thus his service with the predecessors of the board dates back to 1907. With the development of the extensions and improvements of the railways, he was transferred to the New Works department until 1915, when he went on active service until 1919. On returning, Mr. Bentley continued with the New Works until a few years later, when he was recalled to head office, serving under the Chief Engineer.

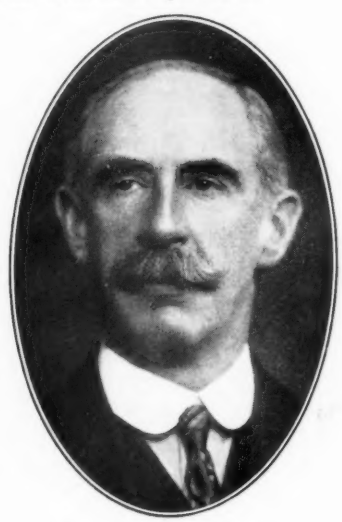
Mr. E. R. Drake, who, as announced in our issue of May 10, has been appointed Assistant to the Chief Staff Officer, London Transport, entered the service of the Metropolitan District Railway in 1906 in the Traffic Manager's office. He was later personal assistant to the Passenger Agent and was subsequently in the office of the Secretary of the Underground group. On August 4, 1914, he was called to the Colours, served on the western front and was invalided in October, 1915. From 1916 to 1919 he was Secretary of the Visiting Committee of the T.O.T. Mutual Aid Fund. In May, 1920, he was appointed to the newly-created staff office of the Underground companies. In 1931 he became senior assistant in the Department of the Chief Staff Officer, serving also as assistant to the Establishment Officer, and continued in that capacity upon transfer to the Staff Department of the Board. On January 1, 1937, he was promoted to the grade of administrative assistant in that department.

Mr. F. C. Bentley

Assistant to the Engineer-in-Chief, London Transport

Mr. E. R. Drake

Appointed Assistant to the Chief Staff Officer, London Transport



The late Mr. R. C. Sikes

Divisional Engineer, Wolverhampton, G.W.R., 1919–1932

We regret to record the death on May 16 of Mr. R. C. Sikes, who was at one time Divisional Engineer, Wolverhampton, Great Western Railway. Mr. Sikes received his engineering training at Queen's College, Cork, and obtained degrees of B.A. and B.E. at the Royal (now the National) University of Ireland. He was articled to the late firm of Wells-Owen & Elwes, Civil Engineers, of Westminster. In 1890, Mr. Sikes was appointed Assistant to the Resident Engineer on the construction of King's Cross No. 3 tunnel, Great Northern Railway, and from 1892 onwards was engaged as an Assistant to the late Mr. D. Gravell, of Westminster, upon L.N.W.R. work in Yorkshire. Mr. Sikes joined the Great Western Railway in 1893 as a Resident Engineer attached to the New Works Department of the Chief Engineer's Department, Paddington, and was Resident Engineer on various works, including the new station at Windsor, the Acton-Northolt, Northolt-High Wycombe, and Ashendon-Aynho railways. In 1910 he became Chief Assistant to the Divisional Engineer, Bristol, and in 1916 was appointed Divisional Engineer, Shrewsbury. In 1919 Mr. Sikes transferred as Divisional Engineer, Wolverhampton, and held this position until July, 1932, when he retired.

The funeral of Mr. E. W. Hallam, Chief Assistant to the Assistant Engineer (Signals & Telegraphs, Southern Railway), a biographical note of whom appeared in our issue of May 17, took place on May 18 at Hither Green. Among those present were :—

Southern Railway : Mr. A. E. Usherwood (representing Mr. George Ellson, Chief Engineer) ; Mr. J. M. Leighton Bayley (representing Mr. R. M. T. Richards, Traffic Manager, and Mr. H. E. O. Wheeler, Superintendent of Operation) ; Mr. L. J. Boucher (representing Lt.-Colonel G. L. Hall, Assistant Engineer, Signals & Telegraphs) ; Messrs. A. Cunnington, Assistant for Lighting, Heating, etc. ; R. Restall, Assistant Divisional Engineer, London West ; Mr. D. G. Tetcombe (representing Mr. C. V. Hill, Southern Divisional Engineer) ; Mr. H. H. Jenner (representing Mr. C. Gribble, Assistant Engineer for New Works & Bridges) ; Mr. K. F. A. Linton (representing Dr. Doncaster, Wimbledon Laboratory) ; Mr. J. H. Knotts, late of the Chief Engineer's office, as well as many members of the Signal Department staff.

Other railways : Major R. F. Morkill and Mr. R. Dell, Joint Signal Engineers, L.P.T.B. Mr. G. H. Crook (also representing Mr. F. H. D. Page, Signal Engineer, G.W.R.).

Other mourners included : Messrs. J. Boot, President, Institution of Railway Signal Engineers ; W. A. Willox, THE RAILWAY GAZETTE ; J. W. Royal, Westinghouse Brake & Signal Co. Ltd. ; T. S. Lascelles, W. R. Sykes Interlocking Signal Co. Ltd. ; J. E. Mott (representing Mr. F. L. Castle, Siemens & General Electric Railway Signal Co. Ltd.) ; F. Horler, Siemens & General Electric Railway Signal Co. Ltd. ; R. Beavan (representing Mr. W. S. Roberts, Managing Director, Railway Signal Co. Ltd.) ; T. C. Elliott, D. P. Battery Co. Ltd.

Mr. H. A. Cotching has recently retired from the position of Chief Mechanical Engineer, Palestine Railways, and has taken up the appointment of Chief Mechanical Engineer of the Iraqi Railways. Mr. Cotching began his railway career in the Mechanical Department of the North Eastern Railway in 1904 as an apprentice, and, after serving a term of five years, remained with the company. In 1915 he was commissioned to the Durham Light Infantry and served in France. He was wounded in 1916, and in the same year was seconded to the Royal Engineers. For the remainder of the war he was attached to the Inland Waterways & Docks Formation. After the war he returned to the North Eastern Railway for a few months, and then went to Damascus for service with the military railways. Later in 1919, he went to Palestine, and since that time has been in charge of the Mechanical Branch of the railways.

The death, on May 14, is announced of Professor William Blackadder, D.Sc., Professor of Engineering at Aberdeen University. Professor Blackadder was born in 1879 and educated at Dundee High School and Edinburgh University. He obtained practical engineering experience on the Caledonian Railway and with the Clyde Navigation. He was Lecturer on Civil Engineering & Applied Mechanics at the Royal Technical College, Glasgow, from 1907 until 1924.

Mr. J. S. Harper, who, as announced in our issue of April 26 has retired from the position of District Superintendent, Hull, L.N.E.R., was entertained at a luncheon on May 17 by his former colleagues. Mr. C. M. Jenkin Jones, Divisional General Manager, presided and presented Mr. Harper with a sporting gun. There were many present and past officers of the North Eastern Area of the L.N.E.R. in attendance.

We regret to record the death on May 15 of Mr. Daniel Connor Lysaght, Managing Director of John Lysaght Limited. Mr. Lysaght was a cousin of Mr. W. R. Lysaght who, as announced in our issue of January 12, resigned the chairmanship of the company after nearly 63 years association with it.

Mr. E. H. Lever, Joint Secretary of the Prudential Assurance Company, has accepted the unanimous invitation of the Directors of Richard Thomas & Co. Ltd. to become Chairman of the company. The appointment is to date from August 1. Mr. Lever will resign his post with the Prudential Assurance Company.

The Rt. Hon. Lord Lloyd of Dolobran has resigned from the boards of the British South Africa Company, Rhodesia Railways Limited, and Rhodesia Railways Trust Limited in consequence of his appointment as Secretary of State for the Colonies.

We regret to record the death on May 13 of Mr. William Henry Massey, M.V.O. Mr. Massey, who was born in France in 1850, remembered when he was a boy de Lesseps coming to buy from Mr. Massey's father, who was a contractor, plant for use in the construction of the Suez Canal. Mr. Massey was for more than 40 years consulting engineer to the King and held the appointment of "Mechanical & Electric Light Engineer" in the Master of the Household's department until his retirement about 20 years ago.

From Supplement to *The London Gazette* of May 21, 1940 : Corps of Royal Engineers. Maj. M. J. M. Dewar, O.B.E. (from Gen. List), to be Maj. March 10, 1940, retaining his present seniority.

The London Passenger Transport Board has contributed £1,000 to the National Y.M.C.A. War Service Fund. Other contributions in the fourth list of gifts published on May 15 are : British Tabulating Machine Co. Ltd., £5,000 ; Butterley Co. Ltd., £500 ; Dunlop Rubber Co. Ltd., £250 ; General Electric Co. Ltd., £250 ; United Steel Companies Limited, £250 ; Metropolitan Vickers Electrical Co. Ltd., £100. The total collected up to April 26 was £250,761.

MR. FRANK PICK'S MESSAGE TO LONDON TRANSPORT STAFF

The following message, headed "Valedictory" and dated April 16, has been addressed by Mr. Frank Pick to the staff of the London Passenger Transport Board, through the columns of the May issue of *Pennyfare* :—

"Now that the time has come when I must sever my connection with London Transport, I should like, in saying goodbye, to put on record the debt which I owe to all those who have worked with me, some for over 30 years. The standard of service which has been set up has been the work of us all. The reputation which we enjoy has been built up from every, even small, contribution that you have made. For reputation rests upon small pains regularly taken much more than upon great occasions.

"It has been my privilege for nearly 15 years to be the chief executive officer and on that account maybe to get too large a share of the credit, but by good luck and your good efforts little blame.

"I do not think it can be said that I have been generous in commendations or thanks all these years. I have been hard and persistent but always seeking the perfection of the thing itself, this board and all its works, sinking, I hope, all personal feelings and ambitions. Words of praise are not what we want when we see the praise forthshadowed in what we, you as much as I, have fashioned for the public service. The thing itself speaks and none can deny. But words of thanks are your due and my last words shall discharge this duty. I give you all my humble and sincere thanks for all that you have given me of help, guidance, and criticism, for all that you have done for London Transport during these many years. May it long flourish."

XUM

TRANSPORT SERVICES AND THE WAR—39

Moorgate to London Bridge tube section reopened—Transport equipment for France—Local Defence Volunteers—Railways of Belgium—Civil Aviation in Scotland—The Slovakian State Railways—The Paris Metro in wartime

Through running by Northern Line tube trains between Moorgate and London Bridge stations was resumed on Sunday, May 19, when the war emergency measures at the Bank station were completed. The reopening of this section marked the conclusion of the whole programme undertaken by the London Passenger Transport Board to cope with possible risks created by the outbreak of war. This was the last of the several sections of line closed in order that protective works might be carried out. While the Bank station has been closed, floodgates have been installed at certain points on the line. The completion of the scheme means that through train services *via* the City on the Morden, Edgware, and Archway sections of the Northern Line have been restored to more than 1,000,000 passengers a week. The section between Moorgate and London Bridge has been closed since September 7.

The Pioneers

From May 14 the minimum age limit of enlistment into the Auxiliary Military Pioneer Corps has been raised from 30 to 35 years of age. On May 8 the War Office announced that the Lord Mayor of London's successful appeal for men for City of London Companies of the Pioneer Corps had been concluded, six complete companies having been added to the strength. The Mayors of the Metropolitan Boroughs, in response to the Lord Mayor's appeal to them, are now raising borough companies of the same Corps; the Borough of Lambeth was the first borough to open recruiting. The campaign is also running strongly in the Midlands and the North. Meetings at Birmingham, Manchester, and Liverpool have been well attended, and recruits are coming in fast in Lancashire, Yorkshire, and elsewhere.

Transport Equipment for France

Monday last, May 20, marked an important stage in the progress of the extensive contracts which are being undertaken in various works in this country to strengthen the transport equipment of the French railways, partly to meet the needs of the British Expeditionary Force, and partly for the use of the French Forces. The Ministry of Supply, which is responsible for supplying the B.E.F. with locomotives, rolling stock, and permanent way equipment, has already placed orders in this country for such material to a total value of nearly £10,000,000. Formal delivery was taken on Monday by representatives of the Ministry of Supply of the first train of 50 French-type 20-ton covered goods wagons, and opportunity was taken to inspect some of the many types of war work now passing through various factories in the Midlands. These wagons are part of the order for 10,000 which was placed last December with the Carriage & Wagon Builders' Association, and, as announced in our issue of December 22 last, the following firms are participating in this order: Metropolitan-Cammell Carriage & Wagon Co. Ltd.; Birmingham Railway Carriage & Wagon Co. Ltd.; Gloucester Railway Carriage & Wagon Co. Ltd.; Hurst, Nelson & Co. Ltd.; R. Y. Pickering & Co. Ltd.; Head, Wrightson & Co. Ltd.; Chas. Roberts & Co. Ltd.; Cravens Railway Carriage & Wagon Co. Ltd.; G. R. Turner Limited; the Butterley Co. Ltd. The wagons are of the four-wheel covered type as shown in the dimensioned drawings which we published at page 84 of our January 19 issue. They have a tare weight of 12 tons and a carrying capacity of 20 tons. The principal dimensions are 29 ft. 4 in. over buffers; 25 ft. 5½ in. over headstocks; 14 ft. 9 3/16 in. wheelbase; 12 ft. 2½ in. from rail to top of roof; and 9 ft. 10 13/16 in. overall width. They are of the French "KKuw" class, and can each accommodate 40 men or 8 horses. The body, constructed of wood, is provided with centre sliding doors on each side. These wagons are built to French standards so that they may be used with existing French stock, and may be repaired rapidly in France without the provision of large quantities of spares from Great Britain. Westinghouse brake equipment is fitted. Although we have quoted the dimensions in English form, the wagons are built to metric measurements. As the French loading gauge is of more generous dimensions than those of this country, these wagons have been built so that by the removal of various parts they are capable of being worked over the British railways to the ports of embarkation. The parts scheduled for removal were detailed at page 85 of our January 19 issue, and amount generally to the removal of the doors, brake rigging, and foot boards.

These vehicles are only one of the various types of wagons which the Ministry of Supply is having built for service on the French railways; in addition, there are refrigerator vans, 20-ton open goods wagons and petrol tank carrying wagons. The petrol tank wagons are being built to British design but modified to suit service in France.

After the inspection, Mr. A. J. Boyd, Chairman of the Carriage & Wagon Builders' Association, and Managing Director of the Metropolitan-Cammell Carriage & Wagon Co. Ltd., spoke of the importance of the carriage and wagon industry as a valuable link in the armament supply of this country, and pointed out that the placing of orders with the industry resulted in practical men being in charge of the work. The 50 wagons delivered that day were a symbol. In all, 10,000 were being built. These 10,000 wagons would require over 130,000 tons of steel and 1,500,000 cu. ft. of timber—figures which gave some idea of the magnitude of the order. He felt that it reflected great credit on the staff of the works that the first delivery had been made on time, despite difficulties and delays in securing raw material and parts; for example, the first of the Westinghouse brake equipment had been delivered but two weeks ago. Moreover, the export trade was not being overlooked, and, although it was not allowed to interfere with war work, orders were going through the shops for passenger rolling stock for the Egyptian State Railways, the South African Railways, and the Kenya & Uganda Railways, and freight vehicles for Turkey, South Africa, and Argentina.

Mr. Peter Bennett, Director-General of Tanks & Transport, Ministry of Supply, responded on behalf of the Ministry. He expressed the thanks and congratulations of the Minister to all concerned for the speed with which they had settled down to the difficult job of building to French designs with metric measurements, but nevertheless achieving contract time with the first delivery. These 20-ton covered wagons, he said, would be used in the first instance for transporting British troops, but they would require to be serviced in French workshops. He spoke of the goodwill on all sides in reconciling military and manufacturing requirements, and also effecting every reasonable economy without prejudice to the ultimate task. He paid tribute to the work of Mr. R. A. Riddles, Director of Transportation Equipment, and of the enthusiasm with which he had effected a saving of no less than £60,000 on the present order by attention to detail. The British Ministry of Supply, he said, had a regular scheme for the interchange of designs with the French authorities, and much sound progress had resulted from this, although it was obviously not in the national interest to

specify details. Mr. Bennett explained the broad organisation of the Ministry of Supply as consisting of various Directors-General responsible for particular departments. His own responsibility, for example, covered armoured fighting vehicles (tanks, etc.) and railway equipment, and had recently been increased by the inclusion of engineering and signal stores. The immediate programme called for a rapid increase in the output of many types of vehicles, and he mentioned that after the cancellation of the Whitsuntide holiday there had been more deliveries in one week than ever before. In conclusion, Mr. Bennett referred to the long-term programme in which the assistance was wanted of all firms able to take part, and he outlined the methods of co-operation of the smaller firms which the Ministry of Supply considered the most desirable. We make further reference to this subject in an editorial note on page 725.

Restaurant Cars in Wartime

An examination of the current British timetables shows with what thoroughness the restoration of restaurant and refreshment car facilities has been carried out by British railways since the complete withdrawal which operated during most of September and October. The total number of trains now operating daily in Great Britain and Northern Ireland with restaurant, buffet, or Pullman cars (from which meals are served in adjacent corridor coaches) can be obtained, is as follows :—

Railway	Section	Restaurant Cars	Buffet Cars	Pullman Cars	Total
L.M.S.R. ...	West Coast Services ...	8	—	—	8
	Western Division ...	38	—	—	38
	Midland Division ...	22	—	—	22
	Scottish Services ...	16	—	—	16
	N.C.C. (Ireland) ...	—	10	—	10
L.M.S.R. Totals		84	10	—	94
L.N.E.R. ...	East Coast Services ...	13	—	—	13
	Great Northern Section	10	2	—	12
	Great Eastern Section ...	22	2	—	24
	Great Central Section ...	—	6	—	6
	North Eastern Area ...	4	32	—	36
	Scottish Area	8	—	—	8
L.N.E.R. Totals		57	42	—	99
G.W.R. Totals		40	12	—	52
S.R. ...	Western Division ...	36	—	—	36
	Central Division	18	6	36	60
	Eastern Division	—	—	24	24
S.R. Totals		54	6	60	120
Grand Totals		235	70	60	365

The L.M.S.R. West Coast services include two in each direction daily between Liverpool and Glasgow as well as the Euston—Glasgow services. On the L.N.E.R. the East Coast services include the King's Cross—Newcastle relief trains, and the Newcastle—Glasgow service (normally Leeds—Glasgow) in addition to the King's Cross—Edinburgh cars. In the North Eastern area of the L.N.E.R. 24 of the 32 buffet services are on the relatively short run between Newcastle and Middlesbrough, and can be maintained with four cars. Buffet cars only are operating on the Great Central Section of the L.N.E.R. On the Southern Railway the buffet cars of the latest type on the Bognor service are advertised as restaurant cars, and the only vehicles under the heading of buffet cars on the S.R. are therefore the first-class pantry composites from which light refreshments are served in corridor trains. Inter-railway restaurant facilities include L.M.S.R. and L.N.E.R. restaurant cars in each direction daily between Liverpool and Newcastle, one L.M.S.R. restaurant car and one L.N.E.R. buffet car making return journeys between Liverpool and Hull, and L.M.S.R. restaurant cars between Liverpool and Plymouth.

As to the types of car in use, the L.M.S.R. services are being maintained almost entirely with 12-wheel first and kitchen cars attached to open third class cars, though in a few cases 12-wheel third and kitchen cars are attached to open firsts ; considerable use is also made of supplementary open cars attached to the restaurant sets. On the L.N.E.R. the cars in use to and from King's Cross are chiefly triplet articulated sets (open first, kitchen, and open third), and include the latest 1938 sets of cars on the Flying Scotsman, also the quintuplet set with end compartments and brakes on the 10.10 a.m. from King's Cross to Leeds. On the Great Western Railway, with the exception of one South Wales service, only single combined composite and kitchen cars are in use, and the same applies to the Southern Railway restaurant car services. The L.M.S.R. and L.N.E.R. have standardised a simple 2s. 6d. meal for breakfast, luncheon, and dinner, with service charge added, at the rate of 3d. in each 2s. 6d. in the former case, and to the nearest penny on a 10 per cent. basis on the L.N.E.R. The L.M.S.R. and L.N.E.R. luncheon and dinner comprise soup, joint and vegetables, and sweets or cheese ; on the G.W.R. and S.R. both sweets and cheese are served, and the meal is priced at 3s., but G.W.R. breakfasts are on an *à la carte* basis. On these two lines, also, gratuities are left to the passenger's discretion. It may be added that the restaurant services in Eire remain unaffected by war conditions. Both the Great Southern and Great Northern Railways have greatly increased their refreshment facilities in recent years. The G.S.R. runs daily 16 restaurant car trains, 6 trains in which light refreshments are served from Pullman type vehicles, and 6 more in which refreshments are served from pantries, or 28 services daily. The G.N.R. has 6 restaurant and 12 buffet or pantry car trains in operation, 18 in all, making a total of 46 daily services in Eire.

Local Defence Volunteers

Mr. Eden, the new Secretary of State for War, broadcast on the evening of May 14 an appeal to the country to give immediate support to a scheme to create a new force for home defence to be known as the Local Defence Volunteers. The purpose of this force, he indicated, would be to guard against possible landings by German parachute troops in this country. Such troops are specially armed and equipped, and some have undergone specialised training. Their function is to seize important points, such as railway junctions, aerodromes, power stations, and telephone exchanges, either for the purpose of destroying them at once, or of holding them until the arrival of reinforcements. The purpose of the parachute attack is to disorganise and confuse, as a preparation for the landing of troops by aircraft. Mr. Eden said that large numbers of men in Great Britain who are British subjects, between the ages of 17 and 65, are needed to offer their service in order to supplement our Defence Forces and make assurance doubly sure. The duties of these Local Defence Volunteers constitute a spare-time job, so there is no need for any volunteer to abandon his present occupation. When on duty these volunteers form part of the Armed Forces. The period of service is for the duration of the war. Volunteers will not be paid, but will receive uniform and will be armed. The duties will not require volunteers to live away from home. This appeal was directed chiefly to those who live in small towns, villages, and less densely inhabited suburban areas. For military reasons, there will be some localities where the numbers required will be small, and others where the service of volunteers will not be required at all. The War Office announced that, up to midnight on May 15-16, the number of applicants for the Local Defence Volunteers totalled over a quarter of a million.

Holland

German summer time was introduced in the German-occupied parts of Holland at midnight on May 15-16, and German currency has been made legal tender. Further details of the success of the German invasion show that the hold on the Moerdijk railway bridge dominated the development of the campaign, as we suggested last week. It seems that, shortly after the invasion began, the bridge, which constitutes the vital railway link between Holland and Belgium, and over which reinforcements could have been sent from the South, fell into German hands without the Dutch having had opportunity to blow it up. The strong Dutch posts which guarded the bridge are stated to have been overpowered by Germans in Dutch uniforms. Some are understood to have descended by parachute, and others had been concealed in barges moored in the Hollandsch Diep, which is spanned by the bridge. It is considered probable that the barges had been there waiting for some time before Holland was invaded. The capture of this bridge allowed German forces to advance against Dordrecht and Rotterdam,

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and, by this threat to its rear, to render untenable the position of the force which kept Holland's main defences unbroken to the end. The Dutch Minister for the Colonies stated in Paris on May 15 that all petrol dumps in Holland had been destroyed by the retreating Dutch troops.

A Railwayman's Two Escapes from Antwerp

Mr. William Taylor, Special Agent of the Canadian National Railways at Antwerp, has just returned safely to England after his second experience in escaping from a German invasion of Belgium. The first was on August 4, 1914, when he was forced to flee from Antwerp. He walked to Ghent, some 35 miles, in a night and a day, and then got a lift in a car to Ostend, where he was fortunate enough to board a Red Cross steamer for Folkestone. His personal belongings were left behind. On May 10, 1940, once again Mr. Taylor was forced to leave Antwerp hastily, also because Germany had invaded Belgium and the following is his account of his experience.

"It was 4 o'clock and dawn on that fateful morning when my wife and daughter awakened me and I heard terrific anti-aircraft fire. Through the window I saw a flight of nine Nazi aeroplanes dropping incendiary and explosive bombs. Two fell 50 to 100 yd. away, setting houses afire, and another landed in the middle of the road only 30 yd. distant, causing a tremendous flame lasting ten minutes before burning itself out. The crisis came when a projectile dropped 15 yd. from the front window—but failed to explode! An A.R.P. worker came running along telling people not to panic and to keep indoors, whilst a Belgian officer examined the deadly thing, removed the fuse, and dropped it into the moat skirting a fort of the outer Antwerp defences, one of the obvious objectives of the German raids, and opposite which is our home. The anti-aircraft gunfire had now become so tremendous that it was blowing the window panes out, and flames from the Antwerp aerodrome a mile away added to the inferno which was spreading along the main routes leading into Antwerp. Two persons were killed in our street and I saw several others being carried away on stretchers.

"The water supply, electricity, and telephones ceased to function—whether they were cut off or damaged could not be ascertained. The only thing to do was to pack a few grips and evacuate. There were no air raid shelters. No conveyance of any description was available so we made our way as best we could to the British Consul-General, who told us he was finding out if a British ship was in port; later in the afternoon one was found. The long arm of the British Government was taking care of the British residents, placing at our disposal the British steamer *Umtali*, of the Bullard King Line. We looked around for any British families to take aboard. A taxi had discharged a family at the ship, and we promptly commandeered it, as things seemed quieter, so that we could motor home and get some more things from the house. And so we ran into another air raid, but collected another trunk.

"By this time we noticed the arrival of tanks and troops with machine guns on the outskirts of Antwerp, and British reconnoitring officers who had come post-haste from the French frontier. Over our house seven aeroplanes were dropping more bombs aimed at the fort, and they were also bombing the railway and the aerodrome, whilst machine gun bullets flew around everywhere. We picked up two young men—born at Kitchener, Ont.—the elder of whom has been doing considerable work for the Canadian National Railways at the offices of our Belgian agents, A.M. De Keyser Thornton. These boys, Albert and Robert Gomperts, had lived in Belgium for 16 years, but I was able to get them British passports and they set out with me for the *Umtali* to get to London and offer their services to the Canadian Army. Robert saw six parachute troops in the air on the outskirts of the town, and said they took a quarter of an hour to float down. We returned to the ship safely, and the captain awaited his chance to get away. In the end 116 people, mostly women and children, were gathered together and embarked by the afternoon.

"The Germans bombed the quay and machine-gunned the ship several times during the night, but at 2 a.m. we cast off in the first blackout that Antwerp had ever experienced, to be followed down the River Scheldt by the Nazi bombers which were evidently keen on sinking us with the intention of blocking the port of Antwerp. Yet we had no casualties, and at the river mouth a Dutch gunboat escorted us through a German minefield newly laid between Flushing and Ostend, the ship's officers shooting at such mines as could be seen out of the water, exploding a number of them. A British destroyer passed us in the river on its way to Antwerp to take care of the British Consul-General and his staff and anybody else left behind.

"We had on board a British Consulate official who had recently arrived from Hanover—a marked man to the Germans and most useful to us by his authority, particularly as he ordered and procured sufficient food for four days before we sailed. A French destroyer next escorted us until we sighted a British destroyer, which took over until we reached the Downs. Here we joined a convoy of ships from invaded countries—Norwegian, Dutch, Belgian, and Danish, and the children on our vessel were intrigued by the variety of the flags. They had shown little fear all along and, indeed, the bombing and sheets of flame greatly interested them. We were ordered to lie down on the floor of the dining saloon several times in the middle of the night for shelter from bombs. This puzzled one or two of the kiddies, who associated such a place with food alone and enquired if they would get something to eat. Well, we were destined in convoy for a West Country port, but our Consulate official was able to secure our disembarkation at Southampton.

"All credit is due to Captain Hall of the *Umtali*, his officers, and the lascar crew, who treated us with every consideration. Some Belgian officers' families who were on board also expressed admiration for the way in which the British Government had taken care of them. A collection, realising £47, was made for the Captain to instal in the dining saloon a suitable souvenir of the momentous voyage."

The Railways of Belgium

Military operations in Belgium will result inevitably in extensive destruction of railways, and especially railway bridges and structures, both by the invaders and also, on defensive grounds, by the Belgian Military Forces. Already many reports are to hand of the demolition of important railway bridges, viaducts, and junctions. During the war of 1914-1919, after the early weeks of the campaign, virtually all Belgium was in German hands. When the Administration of the Belgian State Railways resumed possession of its system after the war, on January 10, 1919, it found itself faced with a great task of reconstruction. Nearly a third of the track had been destroyed in the course of military operations, or removed by the German Forces. Some 350 important bridges and one tunnel had been demolished, 359 stations were inaccessible, and the principal sidings had been blown up. Most of the locomotives had been rendered useless, and the remainder had suffered the abnormal wear of four years of war. The administration's task was all the more difficult because of the urgency of helping in the rapid re-establishment of the economic life of the country. The hasty work done by the Allied armies to rebuild the bridges in the devastated zone, despite its temporary character, constituted the starting-point of the task ahead. It was not until 1930 that the last of the temporary tracks and bridges built by the British Railway Operating Division and the R.E.'s in the British Army's sector were replaced by permanent structures. After the last war Germany was required, under the terms of the Peace Settlement, to hand over to Belgium 2,000 locomotives. Actually, the number incorporated in the permanent rolling stock of the old Belgian State Railways was 1,959, of which 1,820 came from the Prussian State Railways, and the balance of 139 from the railway administrations of Bavaria, Saxony, Baden, Oldenburg, and Mecklenburg.

Civil Aviation in Scotland

Civil aviation has suffered less in Scotland since the outbreak of war than in any other part of the British Isles, by reason of the configuration of the mainland and its many important islands adjacent. As we have already recorded (THE RAILWAY GAZETTE, September 15, 1939, page 384), the Allied Airways operating from Aberdeen suspended all operations for one day only—September 2. Scottish Airways Limited, an associate of the L.M.S.R., resumed working on

September 12, after but 10 days of suspension (THE RAILWAY GAZETTE, October 13, 1939, page 499). Subsequent extensions of these activities have now brought the scheduled flights up to 10,000 flying miles every week, or practically pre-war strength. On May 14 Scottish Airways resumed its Hebrides service, namely, Glasgow (Renfrew)—Tiree—Barra—Benbecula—North Uist; and on May 15 opened the Glasgow (Renfrew)—North Uist (Sollas)—Stornoway route. Each is operated thrice weekly.

Stornoway is now a 2-hour flight from Glasgow, against 15 to 16 hours by rail and steamer. Earlier dates of opening had been announced. All points along the new routes come within the Prohibited Area, and passengers must be possessed of official permits. Also, the windows of the aircraft are opaque, to prevent such details being seen by passengers as listening and observation posts designed to detect the approach of enemy aircraft.

Irish Sea Airways

Since May 7 Aer Lingus Teoranta (Irish Air Lines) has been working the Dublin—Liverpool service with a new Douglas DC 3, delivered from the U.S.A. *via* Antwerp. West Coast Air Services Limited (as forecast at page 492 of our April 5 issue) has begun to work on this route in conjunction with the Dublin company, and there are now two services each way daily. Aer Lingus Teoranta has announced that 2,893 passengers were carried on the Dublin—Liverpool service between October 23, 1939, and March 31, 1940.

Channel Islands Air Lines

Due to war conditions, Jersey Airways Limited introduced higher fares on May 15, namely, a 5 per cent. increase on all tickets for travel between Shoreham airport and Jersey or Guernsey. Local inter-island fares, Jersey—Guernsey and Guernsey—Alderney, remain unaltered for the moment. Members of the Forces travelling on leave at private expense and surrendering a Certificate of Identity signed by their O.C. are allowed a reduction of 10 per cent. It is hoped to augment the existing air service between Shoreham and the Channel Islands on June 1 for the summer season, providing three departures each way daily on the service, Shoreham—Jersey—Guernsey.

A New Swiss Timetable

The Swiss Federal Railways planned to put into operation on May 19 a new timetable accelerating their main-line train services throughout the country, but at the time of writing it is not known whether mobilisation, etc., prevented the new services being brought into effect. Under this timetable, the greatest benefit is to be derived by the Zurich—Geneva lines. For some time past high-speed morning and evening trains, composed of the new lightweight stock, have been covering the 179½ miles between Zurich and Geneva twice daily in each direction in times ranging from 3 hr. 20 min. to 3 hr. 25 min., stopping only at Berne and Lausanne, with start-to-stop average speed up to and slightly exceeding 60 m.p.h. To these are now added a new train at 1.19 p.m. from Zurich to Geneva, taking 3 hr. 33 min., and another at 1.8 p.m. from Geneva, reaching Zurich at 4.46 p.m., which make certain additional intermediate stops. A new high-speed service is also being given between Geneva and Zurich *via* Neuchatel, Bienne, and Olten, greatly improving the connections between the Lake of Neuchatel region and Zurich; this leaves Geneva at 9.10 a.m. and reaches Zurich at 12.53 p.m., while on the return journey departure from Zurich is at 5.15 p.m., reaching Geneva at 9.14 p.m. The Bienne route is ¼-mile longer than the Berne route, as all the trains concerned work into and out of Lausanne, reversing there, instead of taking the direct line (avoiding Lausanne) at Renens, which is 6¼ miles shorter. Apart from these introductions, various existing trains are accelerated greatly, and some of the ordinary services are scheduled to run at speeds but little inferior to those of the *trains legers*. For example, the 7.5 a.m. from Geneva (previously 7.0) is to reach Zurich at 11.24 a.m. instead of 12.30 p.m., a gain of 71 min.; and the 11.13 a.m. from Geneva is due in Zurich at 3.12 p.m., a journey of 3 hr. 59 min. and an acceleration of 46 min. In the reverse direction the 7.16 a.m. from Zurich is accelerated 35 min., to reach Geneva at 11.48 a.m. A new service is to leave Zurich at 8.19 a.m., *via* Berne, and to reach Zurich at 12.35 p.m. Certain through workings of coaches between Interlaken and Basle, *via* Berne and Olten, and between Bienne and Zurich, *via* Délémont and Olten, were previously attached to the foregoing expresses over the relevant sections of their journeys between Berne, Olten, and Zurich, but are now run as separate trains. Nine expresses thus are to make the Zurich—Geneva journey daily in under 4 hr., and the average of the sixteen best trains is only 3 hr. 55 min.—a fine achievement over such heavily-graded lines and, for the most part, with numerous stops. Accelerations are timetabled in most other directions; trains over the Gotthard route, for example, are speeded up to a maximum of 20 min. Service is also being provided at more regular intervals through the day than previously. New trains are: 1.26 p.m. from Basle to Lucerne, due at 3.2 p.m.; from Berne at 9 a.m. to Lucerne, due at 10.22 a.m.; and various others. Numbers of further train sets made up of the new lightweight stock, which is greatly appreciated in Switzerland because of its internal comfort and smooth riding qualities, are being introduced.

The Slovakian State Railways

In the middle of 1939 the Slovakian State Railways totalled 2,265 km. (1,407 miles), but under an agreement signed in Berlin on November 21, 1939, after the German occupation of western Poland, Germany agreed to restore to Slovakia the coal-producing and industrial area in Silesia, around Teschen, which Poland had taken from Czecho-Slovakia in 1938, after the Munich Agreement. The railways of Slovakia now comprise a route mileage of 2,808 km. (1,745 miles) and 650 stations and halts. There are some 20,000 employees. The rolling stock of the former Czecho-Slovak system has been divided between the lines in the Protectorate of Bohemia and Moravia and those in Slovakia. A white rectangle is painted on the former and a white triangle on the latter, in addition to the existing lettering CSD. These letters are gradually being altered on the Slovakian wagons to SZ, standing for Slovenské Zeleznice (Slovakian Railways). The railway system is managed by the Ministry of Public Works in Bratislava. The lines are of great importance to the economic life of central and south-east Europe, serving not only to connect the Silesian coal and industrial region with the Danube Valley, but providing part of a direct connection for the south-eastern States with the Baltic and North Sea. The completion of the Oder and Danube canal will further increase the importance of the Slovakian railways and canals and the port of Bratislava. As we have already recorded, on February 1, 1940, separate rates of charges were introduced by the Slovakian State Railways; before that date the former Czecho-Slovak arrangements prevailed, in common with Bohemia and Moravia.

New Transhipment Tariffs in Germany

Two new tariffs introduced by the German State Railway came into force on April 1, namely, the "Edu" (Elbe-Danube) transhipment tariff and the "Odu" (Oder-Danube) transhipment tariff. The object of both is to promote goods traffic between Baltic and Scandinavian countries and South-East Europe *via* Germany, and at the same time to make maximum use of the available inland waterways. When the Oder-Danube canal is completed and the proposed Elbe-Danube canal has been built, there will be through connections by river and canal between the North Sea and Baltic ports and those of the Black Sea. For the present, however, the German State Railway must carry traffic between the Elbe and Oder and the Danube, and, says the *Hamburger Tageblatt*, "the combined rail and river traffic will attain this year to an importance greater than ever before." The new Elbe-Danube tariff is the successor to the "through Elbe-Danube ship and railway tariff" which was introduced by the Czecho-Slovak State Railways in co-operation with Elbe shipping interests, providing favourable rates between Pressburg and Komarno, Hamburg, Magdeburg, and Dresden. In place of this, the German State Railway, the Elbe shipping concerns, and the railways of the Protectorate and Slovakia, now offer the new transhipment tariff for goods consigned from Hamburg (free port) or Lübeck *via* Laube, Rosawitz, and Melnik, to Vienna, Pressburg, and down the Danube, or in the opposite direction. Similarly, the new tariff for Oder-Danube ship

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and rail traffic applies to through consignments on the route Stettin, Breslau, Cosel, Vienna, and Pressburg, again with further carriage on the Danube as an essential qualification.

Transport Restrictions in France

Further restrictions in railway and motorcoach services, as well as all other forms of public transport in France, have been announced over the Paris radio. The new schedules came into operation at midnight on May 21-22.

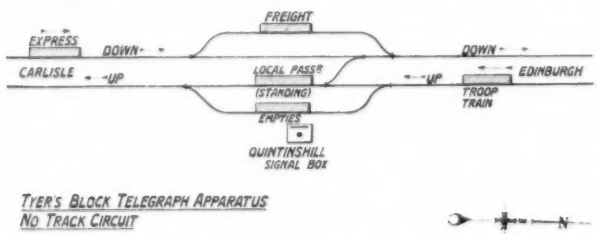
The Paris Metro

For many years past, women have formed an important part of the personnel of the Paris Metro, and in peacetime 160 were employed, mostly as ticket clippers at platform entrances. There are now some 2,000 women in the service, mostly replacing mobilised men, and at 240 stations women are acting as stationmasters.

Traffic receipts of the Paris Metro for 1939 amounted to fr. 708,287,772, against fr. 723,526,658 in 1938. For the urban system within the old city boundaries the total receipts were fr. 644,906,359, against fr. 660,944,430 in 1938. Receipts of the suburban lines were fr. 63,381,413, against the previous fr. 62,582,229. Passengers in 1939 totalled 613,338,768, against 691,942,927 in 1938. The reductions in the receipts and the number of passengers in 1939 were due mainly to the traffic restrictions on the outbreak of war, including the closing of some lines and of numerous stations, as well as the curtailing of the hours the trains were running. Lines still remaining closed comprise those with open-air sections, where trains might be exposed to attacks in the event of air raids.

The Quintinshill (Gretna) Accident of May 22, 1915

In the midst of another war it is unlikely that many persons will recall that the worst accident in British railway history occurred exactly 25 years ago, on Saturday, May 22, 1915. This is usually known to the public as the Gretna accident, as it happened about a mile or so north of that place, but the official railway designation has been Quintinshill, because the collisions took place right outside an intermediate block post of that name, which controlled up and down lay-by sidings. The section was controlled by the Tyer type block telegraph instruments with additional mechanical "train on line" indicator and lock for the section in rear, in general use on the Caledonian Railway, but there was no track circuit or other apparatus automatically to prevent irregular acceptance of trains with others standing on the main line. The signal box had an excellent look out and, with ordinary care, it should have been impossible for a train to be overlooked. The circumstance which started the chain of events was the irregular changing of duty on the part of two of the signalmen, one of whom came on some time later than he should have done, with the connivance of the other whom he relieved, as the hour was more convenient to him for getting to the place. This had been going on for some two years or so and although the stationmaster at Gretna professed to be unaware of it the fact was difficult to understand, as he could have seen the man going away later than he should have done. The man on duty, to hide the irregularity from any inspector examining the train register, entered up all statements from the change hour on a separate bit of paper, from which the other man later copied them into the book in due course, making it appear as if he had come on duty at the correct time.



Scene of the Quintinshill (Gretna) accident of May 22, 1915

On the day in question traffic was fairly heavy with Whitsun extras and up troop specials, and the sidings were very often occupied by slow moving trains waiting for others to pass. A down local passenger from Carlisle, on which the late arriving signalman reached the spot, had to be put over on the up line, to allow down expresses to get by, as there was a freight train in the down siding and an empties in the up, the latter moving in after the arrival of the local passenger, by which time the relieving signalman had got to the signal box. The fireman of the local had gone there, in accordance with rule, to notify the presence of his train shunted over to the wrong line, but failed to see that this was properly understood and that the lever collar safety device had been attached to the protecting home signal lever; it appeared that the signalmen at this box were very lax in using this. There was also a brakeman of one of the other trains there, talking to the signalmen, and other brakemen had been in the signal box longer than was necessary. Exactly how the error which led to the troop train being allowed to approach came to be committed was not definitely established, for, as usual, evidence was contradictory and the two signalmen put the blame on one other. It seems clear, however, that the relieving man was at first engaged in filling up the book and the other man, who apparently told him of the traffic position very perfunctorily, was still chiefly carrying on the actual signalling.

Whoever did it, the "train out of section" block signal was duly given for the empty train to the box in rear and the "train on line" indicator and lock on the up line block instrument then restored to normal, which ought never to have been done. The "blocking back" signal was also not sent as it should have been. The relieving signalman subsequently accepted the troop special, although the local stood on the up line, forgotten. The train was then duly offered to the box in advance and accepted, and all signals pulled off for it to pass on the up main line. About the same time a down express was similarly signalled and all signals cleared for it to pass on the down main line, which was clear and had been cleared expressly for it and the train before it, as above stated, by shunting the local train. One of the remarkable features of this affair was that, even though such a fearful blunder had been committed by someone in the signal box, none of the other persons about the place, such as the trainmen on the local or the two trains in the sidings, perceived the irregular clearing of the up line signals with the line occupied, which they could have easily done, until almost the last moment. The guard of the local train was somewhat to blame for failing to keep watch on those signals. The troop special ran into the local and great destruction was done; shortly afterwards the down express ran into the wreckage, although the two drivers did their best to stop in answer to hand signals shown by people on the ground. A fire followed. Numbers of soldiers were run down, as they had got out on the down line and were caught between their carriages and the freight train alongside. Much difficulty was experienced in arriving at the casualty roll and it was never really cleared up fully, but 224 passengers and 3 servants killed has been officially accepted as practically a correct estimate of the matter. Before this the worst accident on British railways was that at Armagh, Ireland—now Northern Ireland—on June 12, 1889, when 80 were killed. In connection with the Quintinshill accident, there were some legal complications arising from the fact that the accident happened in Scotland and many of the victims died in England in hospital. The two signalmen and the fireman of the local train were tried in Edinburgh for "culpable homicide"; the fireman got off but the signalmen were found guilty. One was sent to penal servitude for three years, the other to prison for eighteen months, a very unusual thing in modern times.

THE RAILWAY GAZETTE
READ WHEREVER THERE ARE RAILWAYS

RAILWAY LAW FOR THE QUARTER

Workman Killed on Prohibited Route

Noble v. *Southern Railway Company*
The Times, April 19

In August, 1938, a fireman named Noble was killed by an electric train when walking from the locomotive depot, at which he worked, to Norwood Junction station from which he had been told to go by train to East Croydon. He had left the recognised safe route and was walking along a dangerous route between the rails used by the electric trains. The use of this route was forbidden to employees of the company and a notice had been issued as to the exact route which had to be taken between this depot and the station.

The Workmen's Compensation Act 1925, section 1 (2), provides that an accident resulting in death or disablement shall be deemed to arise out of and in the course of the workman's employment notwithstanding that he was acting contrary to statutory or other regulations applicable to the employment, or to his employer's orders, if the act was done by the workman for the purpose of and in connection with his employer's trade or business.

The workman's widow claimed compensation under the Act of 1925, but the County Court Judge held that the above section did not help the workman and he made an award in favour of the company.

The difficulty which the Courts below had in *Noble's* case was that they were bound to follow *Clarke* v. *Southern Railway Co.* (1927) 20 B.W.C.C. 309. In that case the workman was walking along a prohibited route and in order to save himself trouble he tried to mount an engine in motion, with the result that he was permanently injured. It was there held by the Court of Appeal that in going into a definitely prohibited area the workman had gone outside his sphere of employment and could not get compensation. In order to arrive at the decision in *Noble's* case the House of Lords had to overrule *Clarke's* case which they were able to do, being a superior court to the Court of Appeal, so that that case is no longer good law.

So long as the workman is in the employer's business and going to his allotted job he is entitled to compensation under the Act. What then is left of the "added peril," which, owing to the workman's breach of the regulations, has deprived him of his right to recover? The answer is that it is inapplicable to section 1, subs. 2, of the Act. It is only of importance in considering whether the workman was acting within the scope of his employment under section 1, subs. 1, of the Act. Let us see what the House of Lords said in words on this point.

The "Added Peril"

In dealing with this subject, an extract from Lord Maugham's judgment in *Noble's* case should be recorded. "The Act of 1925, S. 1 (2)," he said, "merely provides an artificial extension of the actual scope of employment of the workman in the particular circumstances mentioned, and subject to the special condition that the act which was being done at the time of the accident was done for the purposes of and in connection with—not the workman's job—but his employer's trade or business. The 'added peril' test is quite inapplicable to S. 1, subs. 2, if it is a matter of doubt whether a particular act is or is not within the workman's employment. In such a case the circumstance that the act involves an added peril may help to the conclusion that the act was not intended to be within the scope of the man's employment."

Wages in Kind

It was pointed out recently in an editorial in THE RAILWAY GAZETTE that the decision of the House of Lords in *Pratt* v. *Cook & Sons (St. Pauls) Ltd.* was likely to cause consternation in commercial circles. The effect of it was that work people in various employments who had received meals or other benefit in kind, even if under trade union agreement, could in many instances claim to be remunerated twice over. The Home Secretary (Sir J. Anderson) has now intimated that a Bill is to be introduced in Parliament to bar claims under section 4 of the Truck Act 1831, in cases where it would have been legal to pay a higher wage, but to make deductions for the remuneration in kind. It remains to be seen how the Bill will deal with cases upon this head in which judgment is signed before the Bill becomes law.

Ejecting a Passenger

Morton v. *Southern Railway Company.*
April 15

Mr. Morton was entering a train as a passenger, when one of the occupants said "staff only" and after some acrimonious words threw him out on to the platform. The aggressor was in fact a relief signalman in the company's service, and Mr. Morton, naturally thirsting for redress, brought an action for damages against the company on the ground that the signalman was the company's servant and agent, and that the other occupants of the carriage, who were also the company's servants, failed to protect him. As to this last, however, the attack was so sudden that there was no time for them to prevent the incident. On the other point the signalman was merely a passenger going to his work and Mr. Justice Oliver held that he was not acting within the scope of his authority as a servant of the company in ejecting Mr. Morton.

In *Bailey* v. *Manchester Sheffield & Lincolnshire Railway Company* (1872) L.R. 7 C.P. 420, a porter who had violently pulled a passenger out of a carriage in the erroneous belief that he was in the wrong carriage, was held to have been acting within his authority from the company. But a relief signalman could not be said to have any such duty as a servant of the company, and so Mr. Justice Oliver held that the company could not be made liable.

Limitation of Dividends

At first it was supposed that the Chancellor of the Exchequer did not intend this proposal to limit dividends to the maximum of the last three years, to apply to statutory companies, but it appears now that it is to affect railway companies for the period of the war. The practical result is that all the companies will be limited to the 4 per cent. maximum. But there are some strange contrasts between them having regard to the pooling agreement. That is a matter upon which City experts are better able to comment. It is however obvious that difficulties will arise as to the position of holders of "C" stock of the L.P.T.B., which is not even a statutory company. Again it is a moot point whether the holders of preferred ordinary stock in railway companies hold equity capital. The terms of the particular stock would have to be considered in the light of the new provision, before a decision could be reached. But preference capital is defined as shares or stock carrying a fixed rate in priority to all dividends on some other class of capital; and this definition should cover most cases.

RAILWAY CONVALESCENT HOMES.—The income and expenditure account of the Railway Convalescent Homes for the year ended December 31, 1939, shows an income of £50,822, and expenditure (including depreciation) £41,766, leaving a balance of £9,056. The income was made up of £41,952 from railway staff collections, £1,596 from donations from the public, etc., £3,255 from investment income, £3,079 from hospital services, and £940 from sundries. Expenditure on maintenance was £35,200 and on administration £5,162. The number of patients using the homes in 1939 was 6,619, including 4,535 men, 1,912 women, and 172 babies.

ALUMINIUM RESEARCH AND DEVELOPMENT.—The research department of the Northern Aluminium Co. Ltd. has now been amalgamated with that company's sales engineering & development department. The new department will be known as the research & development department, and Mr. Gordon H. Field, who this year completes 25 years of association with the aluminium industry, will be Research and Development Manager, and Mr. F. R. C. Smith Assistant Manager. In addition to undertaking research and development work in connection with the company's products, the new department will be available to give advice in respect of customers' problems in connection with the use or possible use of aluminium and its alloys. The research & development department will be stationed at Banbury.

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RAILWAY AND OTHER MEETINGS

Brush Electrical Engineering Co. Ltd.

The annual general meeting of the Brush Electrical Engineering Co. Ltd. was held on Tuesday last, May 21, at Loughborough.

Sir Ronald W. Matthews, the Chairman of the company, who presided, said: As the report and accounts have been circulated to you all, I will, with your consent, take these as read. The balance sheet does not call for much comment, but I would draw your attention to the very considerable increase in stock and work in progress as compared with the previous year. This mainly accounts for the alteration in the bank position, and the necessity of obtaining overdraft facilities from the company's bankers.

Turning to the profit and loss account, you will see that the sum of £67,765 is the trading profit against £17,397 for last year. The acquisition last year of plant and machinery from Petters Limited, of Yeovil, is reflected in the increase in depreciation from £5,992 to £14,118.

Last year I stated that the reorganisation through which the works was passing would occupy our activities during the first half of this year which we are now reviewing, and that the results of 1939 would be adversely affected by this disturbance. In actual fact the reorganisation period extended to nine months of the year, and in view of this the trading results can be considered as satisfactory.

I am pleased to say we have received a large number of turbine orders during the year, including a repeat order from the Brighton Corporation Electricity Department, this being the second repeat from this undertaking.

An improvement has also been shown in the orders received for transformers and our efforts to develop this department are meeting with success. We are developing our range of electrical products and a new sales organisation is being built up to deal with this side of our business.

The output of Petter engines steadily increased during the year, notwithstanding the necessity of allocating a large proportion of engine turnover to fulfil Government contracts. During the year we have continued our research and development of new designs on both our engine and electrical products, and as a result of our work in this direction we shall, after the war, be in a position to enter the world's markets with up-to-date products.

Since our last meeting, the company has added a further product to its existing range, having acquired the manufacturing rights of the Koela Gas Producer for motor vehicles. This is now being marketed under the name of Brush-Koela. It will be appreciated that there is a very extensive demand for this type of apparatus and the company has appointed distributors over the whole of the British Isles to handle sales and service of these producers.

I have again to report a very considerable increase in the orders in hand compared with a year ago. Our subsidiary, Brush Coachwork Limited, has been well occupied during the year in the production of bus bodies and on sub-contract work from the parent company.

The report and accounts were unanimously adopted.

Beyer Peacock & Co. Ltd.

The annual general meeting of Beyer, Peacock & Co. Ltd. was held at the Hotel Rubens, London, S.W., on May 21. Captain Hugh Vivian, M.I.Mech.E., Chairman of the company, presided.

The Secretary, Mr. L. T. Dawes, having read the notice convening the meeting, and the report of the auditors,

The Chairman said: The net profit for the year is £52,519, about £1,500 more than the figure for last year. It should be noted, however, that the net profit shown on the balance sheet is subject to provision for Excess Profits Tax, but the liability in this respect cannot be determined at present as the results of the Richard Garrett Engineering Works Limited have to be taken into account in arriving at the basis on which this tax is assessed—the financial year of the subsidiary company does not end until June 30, 1940.

There is one point I would like to make at this stage. The profit for 1939 would have been considerably higher but for the outbreak of war in September. Had the company been free to pursue its normal operations unhindered by *force majeure* its export order book of locomotive contracts, the result of intensive efforts for years past, was of ample size to ensure a prosperous year. There is a good deal of misinformed or uninformed opinion as to the profitability of armament contracts in the engineering trades. I wish to make it quite clear that Beyer, Peacock & Company is considerably worse off financially as a result of the inevitable dislocation of normal trade.

During the year we shipped Beyer-Garratt locomotives to Kenya, South Africa, Australia, Nigeria, and India. We also despatched locomotives and tenders to Peru, Brazil, and the Gold Coast. Of the different designs of locomotives which went into service in 1939, the most important have been a modified design of Beyer-Garratt locomotive to the Nigerian Railway, completely new designs of Beyer-Garratt locomotives for the Kenya & Uganda Railway and the Bengal-Nagpur Railway, and a new design of locomotive and tender for the Leopoldina Railway in Brazil. Certain of these contracts have been completed, and the locomotives despatched and put into service since the war began.

The Beyer-Garratt locomotives built for the Kenya & Uganda Railway metre gauge are undoubtedly the most outstanding of our designs completed during 1939. The wheel arrangement is 4-8-4 + 4-8-4 and the first of its kind in the world. These engines weigh 186 tons each and are the largest locomotives in the world running on a 50 lb. rail. The order was for six locomotives and they have now been in service some six months. We are officially informed that they have given complete satisfaction. Their employment is on the longest metre-gauge run in the world, namely, from Nairobi to Kampala and back—1,106 miles—and a spare engine crew is carried in a caboose. It is also noteworthy that in these huge machines, each of which has 56 main bearings, not one single hot bearing has been experienced since they were placed in service. A repeat order for a further six such engines has just been completed.

The Beyer-Garratt engines for the Nigerian Railway have been shipped since the war began and have now been running for three or four months. We have recently received an official report, which refers to the excellent results these engines are giving not only as regards the load hauled but also in relation to coal consumption and general efficiency. The Beyer-Garratt locomotives for the Bengal-Nagpur Railway are interesting as they were a new design for the 5 ft. 6 in. gauge, and all of these have arrived at Calcutta and have been placed in service and are giving very good results. They are the largest branch line locomotives running in India, weighing 230 tons each.

The other order was for six tender locomotives of the Pacific type. The interesting feature of these engines was the task given us to design a firebox and ashpan capable of burning Brazilian national coal, which is of low calorific value and of exceptionally high ash content, the burning of which in a locomotive firebox has not up to the present been entirely satisfactory. These engines were shipped in October and November last and are now all in service. Preliminary advices indicate that very good results may be expected.

I cite these four cases as illustrating that not only are we maintaining our pre-eminent position in the field of locomotive design, but also that we continue to manufacture engines of high quality and reliability. From these examples and from reports we are continually receiving from railways in different parts of the world it is apparent that our speciality, the Beyer-Garratt articulated locomotive, continues to fill a definite place in the motive power units of important railways. The Government has clearly intimated that

export trade is of the utmost importance to our war effort. I therefore hope that we shall be able to arrange for the export of locomotives on an increasing scale in the not too far distant future. Only thus can we retain the overseas goodwill which this company has worked so long and so hard to secure.

Shareholders will share the gratification of the board in the further progress of our subsidiary company—the Richard Garrett Engineering Works Limited. The accounts include for the first time dividends received from the Leiston works. Your directors have reason to believe that the technical and financial foundations of the subsidiary are now well established. Due to the war our subsidiary has had to relinquish the development and manufacture of certain peacetime products. Plans had been made for the rapid expansion of what we believed to be suitable and profitable new lines. Only by postponing these were we able at Leiston to secure the necessary intensification of production of war items.

With regard to the general position of the company today and its outlook for the future, both factories are working with large order books, but continuity of manufacture over a long period depends on the adequacy of material supplies and the skilled labour available. We have taken reasonable precautions to guard against the dislocation and loss which would follow if all Government contracts were terminated at the same time on the cessation of hostilities. With regard to taxation, the Chancellor of the Exchequer has stated that consideration will be given to the problems of inequality in applying the burdens of Excess Profits Tax on industry, and everything possible will be done to bring to the notice of the Treasury and the Inland Revenue Authorities the very strong case of the locomotive industry for special treatment on the grounds of hardship.

The company has resumed payments to the debenture sinking fund, and the directors consider that the finances of the company justify some payment of preference dividend. They therefore propose to pay a half year's preference dividend in July. It is the board's intention to keep the claims of shareholders continually under review along with the state of the company's finances, and as soon as reasonable business caution permits you may rely on the board recommending some further distribution.

I must also express my sincere appreciation of the constant co-operation and help which my colleagues have given me. The change from peace to wartime products has necessitated an intensive effort and has subjected all to abnormal strain. In this connection I desire to mention particularly Mr. Wilmot, our Managing Director, whose ability and enthusiasm have been beyond all praise. He has been ably supported by Mr. Jackson and Mr. Williams, and once again we owe a debt of gratitude to this efficient and loyal team for all they have achieved. Mr. Dawes, our Secretary, has also had a very difficult task and has carried out his arduous duties in an excellent manner. Mr. Bambrough and the executive staff of our subsidiary company deserve all praise for the enterprise and efficiency they have shown in developing war products of types never contemplated in our original peacetime policy.

The report and accounts were unanimously adopted.

Collisions under Continuous Cab Signalling

Two curious accidents on Illinois Central System

Two collisions occurred, in November, 1939 and January, 1940, respectively, on a section of the Illinois Central System provided with continuous cab signalling and automatic stop equipment, but without ordinary fixed signals alongside the line except at interlocking layouts. In the first case, which resulted in injury to 8 persons, a stationary goods train was run into by a passenger train of which the driver before starting had failed to put the cab signal and train stop equipment into operating condition, and had run some 40 miles without noticing the omission, although he should have received audible signals at certain points along the route which was known to him. Hand signals were shown by the trainmen of the goods train, but the passenger driver did not observe them until too late.

The second collision, between two passenger trains, one following the other, was more serious, resulting in one death and injuries to 127 persons. The cab signal and train stop apparatus of the following train had been cut out of action at a station 60 miles in rear of the scene of the accident, owing to some defect having developed. The train dispatcher, having been duly advised, therefore warned the crew of the train ahead to be on the lookout and protect it if necessary. Later, this train being stopped at a level crossing over another railway, a flagman started back to show signals but, falling in the dark, his lamp was extinguished. When the signal was cleared at the crossing for the train to proceed, its clear indication was taken by the driver of the following train to be for him. He failed to see the rear of the train in front, with which he thereupon collided.

The official reports on these accidents revealed that there had been many cases of trains running with the cab signal equipment out of use, and that such trains had often been known to make up time on the run, which indicated that they were not being driven with anything like proper caution. The general practice on railways working with such apparatus and without ordinary signals along the line in addition, is, when the equipment fails, to change engines, or to institute a temporary telegraphic block system, with the aid of ordinary telegraphic or telephone messages between points where responsible officials are on duty, or to insist on very careful running at caution. Any one of these arrangements could have been adopted in the second case mentioned above.

London Passenger Fare Increase

The inquiry by the Charges (Railway Control) Consultative Committee into the best means of increasing the fares charged in respect of the road services of the London Passenger Transport Board so as to obtain an increase equal as nearly as possible to 10 per cent. opened at Bush House, Aldwych, W.C.2, on Wednesday. Mr. W. Bruce Thomas, K.C. presided, and the other members of the Committee were Mr. John Quirey and Mr. H. E. Parkes. Full details of the proposals for increasing fares which have been submitted by the Railway Executive Committee were published in THE RAILWAY GAZETTE of May 17. Mr. A. T. Miller, K.C., appeared for the R.E.C. and estimated that the yield from the proposals would be £3,834,000 including increases in rail fares which might be found necessary in order to prevent the diversion of traffic from roads to rail. In a year 1,580,269,440 passengers used penny fares on Central and Country buses, trams and trolleybuses. The percentage of the total receipts from penny fares was 35·9. Mr. Frank Pick, who recently retired from the vice-chairmanship of the London Passenger Transport Board, in evidence said that there were two ways of approaching the problem of the penny fare—shortening the stages or raising the fare. The former would have the effect of increasing the fares for certain journeys by 100 per cent. It would be less remunerative because of evasion. There appeared no escape from the increase of all 1d. road fares to 1½d. The inquiry was adjourned until 10 a.m. today (Friday).

UNITED RAILWAYS OF THE HAVANA & REGLA WAREHOUSES LIMITED.—The stockholders committee has extended for a further year the operation of the scheme of arrangement dated June 27, 1930, as extended by the schemes of 1932, 1935, and 1938.

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NOTES AND NEWS

E.N.I.T. London Offices.—The London offices of the Italian State Tourist Department (E.N.I.T.) have been removed to 43, Berkeley Square, W.1. The telephone number is Grosvenor 1611.

Ulverston and Lake Side Branch, L.M.S.R.—The L.M.S.R. announces the resumption for the summer season, from May 14, of weekday and Sunday passenger services on the Ulverston and Lake Side (Windermere) Branch.

Grand Trunk Junior Stocks Limited.—Shareholders who have not applied for their Grand Trunk Railway Company of Canada stock certificates in accordance with the circular of April 10, are asked to do so not later than July 1, as the company cannot be responsible for any certificates after that date.

Settlement of Australian Coal Strike.—A Reuters message from Sydney states that the Australian coal strike, previously referred to in our Overseas pages, was settled on May 17. As it began on March 11, it had been going on for over nine weeks, during which time 20,000 miners were affected and train services had been seriously reduced.

Export Groups.—The number of export groups which has been formed now totals 105. It includes groups for gear manufacturers, with offices at Bush House, Room 632, Aldwych, W.C.2; light edge tools, Norris Deacon Buildings, King Street, Sheffield; and railway springs, Peat, Marwick & Mitchell & Co., Williams Deacon's Bank Chambers, Church Street, Sheffield.

Government and Oil Industry.—In view of the increased importance and complexity of the duties in connection with coal and oil respectively under present conditions, it has been decided to divide the duties hitherto discharged by the Secretary for Mines. Questions concerning the mining industry and coal supplies will continue to remain the responsibility of the Secretary for Mines (Mr. D. R. Grenfell): those relating to the oil industry and petroleum supplies will be dealt with by a new Minister (Mr. Geoffrey Lloyd), designated the Secretary for Petroleum.

Great Northern (Ireland) Rates and Charges.—The Court of the Railway Tribunal (Eire) will sit at the Four Courts, Dublin, on Tuesday, June 11, to consider an application by the Great Northern Railway Company (Ireland) under Section 31 of the Railways Act, 1924, for increases in the Company's rates and charges in force on July 23, 1924, for the carriage of merchandise (including livestock) by merchandise train on those portions of its undertaking situate in Eire.

Indian Frontier Mail in Collision.—In the early morning of May 15, the Frontier Mail on the Bombay, Baroda & Central India Railway came into collision with a goods train at a point about 330 miles north of Bombay. It is reported that 15 passengers were killed and 10 injured, but, though there were European passengers on the train, it is not yet known whether any of them were casualties.

Donegal Railway Closing.—It has now been announced in Eire that the Londonderry & Lough Swilly Railway Company is closing its 50-mile Letterkenny & Burtonport Extension Line on June 3, and is also withdrawing the passenger service from the Bridgend—Letterkenny section from the same date. The company's motorbus services will carry the traffic. Editorial reference to the proposed closure of the Burtonport line was made at page 662 of our May 10 issue.

Mexican Railways Workers' Control Fails.—It is reported that President Cárdenas has ordered the transfer, to the corresponding government departments, of the technical, administrative, and financial control of the Mexican National Railways, in consequence of the failure of the Workers' Administration to operate the public service with safety and efficiency. The expropriation of the National Railways was decreed in June, 1937, and the administration was given over to the Workers' Syndicate in May, 1938. Since then discipline has deteriorated, accidents have been increasingly frequent, and the financial situation has grown steadily worse. The General Manager and his principal executives resigned in March. Meanwhile, it is only fair to the Workers' Administration to recall that they took over the system in a grievous state of disrepair and obsolescence and with arrears of debt which have always crippled the railway treasury.

Irish Traffic Returns

IRELAND		Totals for 19th Week			Totals to Date		
		1940	1939	Inc. or Dec.	1940	1939	Inc. or Dec.
		£	£	£	£	£	£
Belfast & C.D. (80 miles)	pass.	2,729	1,949	+ 780	43,460	34,469	+ 8,991
	goods	545	448	+ 97	9,174	8,230	+ 944
	total	3,274	2,397	+ 877	52,634	42,699	+ 9,935
Great Northern (543 miles)	pass.	11,300	8,450	+ 2,850	189,700	168,650	+ 21,050
	goods	12,500	10,500	+ 2,000	219,300	194,050	+ 25,250
	total	23,800	18,950	+ 4,850	409,000	362,700	+ 46,300
Great Southern (2,076 miles)	pass.	32,526	29,432	+ 3,094	576,136	568,710	+ 7,426
	goods	52,493	41,456	+ 11,037	847,813	796,760	+ 51,053
	total	85,019	70,888	+ 14,131	1,423,949	1,365,470	+ 58,479
L.M.S.R. (N.C.C.) (271 miles)	pass.	4,680	3,350	+ 1,330	83,710	62,930	+ 20,780
	goods	3,830	3,040	+ 790	66,140	56,010	+ 10,130
	total	8,510	6,390	+ 2,120	149,850	118,940	+ 30,910

British and Irish Railway Stocks and Shares

Stocks	Highest 1939	Lowest 1939	Prices May 21, 1940	Prices Rise / Fall
G.W.R.				
Cons. Ord.	38	21½	35	−5½
5% Con. Pref.	92	71	94½	−4
5% Red. Pref. (1950)	98	83	102½	−1
4% Deb.	103	91	98	−5½
4½% Deb.	105½	93¾	103	−2½
4½% Deb.	110	99	106	−3½
5% Deb.	121	109 12/16	119½	−3
2½% Deb.	63½	54	63½	−2
5% Rt. Charge	117	104	112	−4
5% Cons. Guar.	111	96 12/16	109	−4
L.M.S.R.				
Ord.	17	9½	15	−3
4% Pref. (1923)	46½	20	37½	−8
4% Pref.	63½	37½	54	−3½
5% Red. Pref. (1955)	83	58½	83½	−8½
4% Deb.	98½	85	94½	−5
5% Red. Deb. (1952)	109	101½	107	—
4% Guar.	87⅞	73	83½	−4
L.N.E.R.				
5% Pref. Ord.	5¾	3½	4	−1
Def. Ord.	3¾	1⅜	2⅛	−½
4% First Pref.	38¾	19	36	−7½
4% Second Pref.	15	7⅜	13½	−2½
5% Red. Pref. (1955)	55	38	62½	−7½
4% First Guar.	78½	60	75¾	−3
4% Second Guar.	68¾	47	63	−4½
3% Deb.	71 1/16	57	63½	−4
4% Deb.	93	76	86	−7½
5% Red. Deb. (1947)	106 12/16	98	102½	2
4½% Sinking Fund Red. Deb.	104½	96	102½	—
SOUTHERN				
Pref. Ord.	78	46½	55	−11
Def. Ord.	19¼	7	13¼	−4
5% Pref.	100	76	94½	−4
5% Red. Pref. (1964)	102 3/16	94	102½	—
5% Guar. Pref.	116½	103	110	−3
5% Red. Guar. Pref. (1957)	112¾	102 12/16	107	−2½
4% Deb.	103	91¼	97	−5½
5% Deb.	118½	109½	119½	−3
4% Red. Deb. (1962–67)	106	98	102	−2½
4% Red. Deb. (1970–80)	102	96	102	−2½
FORTH BRIDGE				
4% Deb.	98 11/16	81	92½	—
4% Guar.	95	80	91	−1½
L.P.T.B.				
4½% "A"	115	103	108½	2
5% "A"	123	106½	116	−1½
4½% "T.F.A."	105	100 12/16	102	−1½
5% "B"	117½	102	108½	−1
"C"	84	63¾	37½	−5
MERSEY				
Ord.	24 17/32	17¼	23½	−2
4% Perp. Deb.	93⅜	88½	91	—
3% Perp. Deb.	77	65½	65½	—
3% Perp. Pref.	55	49¼	54½	—
IRELAND				
BELFAST & C.D.				
Ord	6	3	4	—
G. NORTHERN				
Ord.	6	2½	4	—
G. SOUTHERN				
Ord.	13½	8	9½	−¼
Pref.	26	10	22½	−¾
Guar.	40½	22	29	—
Deb.	57	45½	51½	—

RAILWAY AND OTHER REPORTS

Nitrate Railways Co. Ltd.—A dividend of 1¼ per cent., less tax, on the ordinary and preferred converted ordinary shares of this company is being paid for the year 1939, the same as for 1938. According to the preliminary statement issued the net profit for 1939 was £34,006, against £35,066 for 1938, the sum of £7,500 (against nil) is placed to contingencies reserve, and £175,615 is to be carried forward, against £185,334 brought in.

Bombay, Baroda & Central India Railway Company.—The directors will propose, at the general meeting to be held in July, the payment, in addition to the half-year's guaranteed interest of £1 10s. per cent., of a final dividend for the financial year ended at March 31, 1940, of £1 10s. per cent., making a total payment in July next of £3 per cent., less tax. The return on the capital stock for the whole year will therefore be £6 per cent., less tax, the same as for the previous year.

Antofagasta (Chili) & Bolivia Railway Co. Ltd.—The directors announce that, after making provision for loss on exchange, income tax, etc., the full year's interest on the debenture stocks and a contribution to the staff benevolent fund, there is a balance on net revenue account for the year 1939 of approximately £176,500, which it is proposed to carry forward. For the previous year 1½ per cent. was paid on account of arrears of dividend on the 5 per cent. preference stock. The preference dividend for the year 1935 is still in arrears to the extent of 2¼ per cent.

New York, New Haven & Hartford Railroad Company.—After providing for interest and other charges there was a net deficit in 1939 of $2,914,114, which compares with a net deficit of $11,623,192 for 1938. Railway operating revenues in 1939 were $83,418,475, an increase of $10,338,334, and operating expenses rose by $1,661,039 to $61,459,159, making the operating ratio 73·68 per cent. against 81·83 per cent. Net railway operating income, at $8,462,922, was $7,945,875 higher, and the total income of $11,188,447 showed an improvement of $8,255,393. Fixed charges totalled $13,456,003 leaving a net deficit as above stated.

Chicago & North Western Railway Company.—According to the report for the year 1939 the average mileage operated was 8,349, a decrease of 42 miles. Railway operating revenues were $87,250,460, an increase of $6,194,591 in comparison with 1938, and the total operating expenses of $72,274,873 showed an advance of $1,228,489, bringing the operating ratio down from 87·7 per cent. to 82·8 per cent. Net railway operating income amounted to $5,722,260 in 1939, comparing with a loss of $125,511 in 1938. Total income was $7,495,288, an improvement of $6,023,229 on 1938. Fixed charges totalled $16,455,349, leaving a net deficit of $9,109,868, compared with $15,275,983 in 1938.

Grand Junction Co. Ltd.—This company formerly owned a canal undertaking which it sold to the Grand Union Canal Company in 1929. It now has as its chief assets an estate at Paddington and investments. The directors recommend a final dividend of 2 per cent., making 3 per cent. for the year to March 31 (against 4 per cent.). Net profit was £30,259 (against £40,109).

St. Louis South-Western Railway Lines.—Total receipts in 1939 were $19,690,471 and expenditures $21,708,792. Net railway operating income amounted to $1,142,599 and the net deficit after meeting charges was $2,018,321. Profits of the Southwestern Transportation Company, a subsidiary, reduced the deficit to $1,982,599.

Southern Pacific Company.—Total railway operating revenue for 1939 amounted to $217,572,889 compared with $200,070,813 for 1938, and operating expenses rose from $157,246,668 to $159,441,622. In net railway operating income there was an improvement from $14,297,003 to $28,428,410, and the total income reached $37,689,076, against $25,573,116. Total fixed charges amounted to $30,007,291, leaving a net income of $6,134,574. In 1938 there was a deficit of $6,829,008.

Illinois Central Railroad Company.—Results for the year 1939 show that operating revenues amounted to $111,370,852, an increase of $5,955,024 in comparison with 1938. Expenses rose by $5,022,123 to $81,646,703 and taxes by $449,474 to $10,157,597, so that the railway operating income of $19,566,551 was $483,427 higher. Total income was $18,720,344, an improvement of $923,746, and the fixed charges, etc., of $16,384,569 were $189,154 lower, so that the net income of $2,335,775 showed an increase of $1,112,900. A sum of $115,372 was appropriated to sinking funds, leaving a balance to profit and loss of $2,220,402.

British Timken Limited.—The net profit for the year 1939, amounts, after charging depreciation, to £115,619. A transfer of £55,000 is made to taxation reserve and £23,427 to general reserve, leaving £37,192, to which has to be added £22,868 brought forward, making a total available of £60,060. The directors propose the payment of a dividend of 15 per cent., less tax, on the 360,000 ordinary shares, absorbing £33,750 and leaving £26,310 to be carried forward. The net profit for 1938 was £91,879 and for 1937 it was £133,007, in both cases after charging depreciation. For 1937 a dividend of 15 per cent. less tax was paid on the then capital of 300,000 ordinary shares and £60,000 of the general reserve was capitalised, fully paid ordinary shares being issued to shareholders in the proportion of one to five. For 1938 a dividend of 15 per cent., less tax, was paid on the increased capital of 360,000 ordinary shares.

Central Wagon Co. Ltd.—The directors have declared an interim dividend of 3 per cent. (same) for the year to September 30 next.

George Spencer Moulton & Co. Ltd.—According to the report for the year 1939 the profit was £32,671, against £62,561 for 1938. Sums are deducted of £7,184 for bank loan interest, £15,250 for taxation, and £5,000 special provision for depreciation of plant. As already announced, the ordinary dividend for the year is to be 2½ per cent., against 5 per cent. for 1938, and the amount to be carried forward is £21,531, against £20,325 brought in.

Forthcoming Meetings

May 29 (*Wed.*).—**The Nitrate Railway Company** (Ordinary general), Winchester House, Old Broad Street, E.C.2, at 11.30 a.m.

Contracts and Tenders

The North British Locomotive Co. Ltd. has received an order from the Great Western Railway of Brazil for 10 pairs of locomotive cylinders.

The following orders have been placed to the inspection of Messrs. Rendel, Palmer & Tritton :—

Madras & Southern Mahratta Railway :
George Turton Platts & Co. Ltd. : 120,000 "Stuarts" rail keys, 142,000 wedges, 25,000 "Turplat" rail keys.
Bengal & North Western Railway :
Metropolitan-Cammell Carriage & Wagon Co. Ltd. ; 2 composite first and second class bogie carriages, 1 interclass bogie carriage, 6 third class bogie carriages with Sheffield Twinberrow bogies and with wheels and axles.

The Peruvian Corporation has placed an order for 2,725 kilos of short link chain with David Willetts, of Hadley Heath.

The Egyptian State Railways have placed the following orders :—

P. & W. McLellan Limited : Tin ingots (No. 306.G.3/15 ; £5,497).
Bullers Limited : 100,000 insulators (No. 333.G.8/24 ; £2,500).
H. J. Skelton & Co. Ltd. : Mild steel rounds (No. 1.577 ; £474).
British Insulated Cables Limited : Cable (No. 335.G.8/57 ; items 1, 2 and 4 ; £5,852).
Pirelli Limited, Milan : Cable (No. 335.G.8/57, items 3 and 5 ; £1,044).
Blaenavon Co. Ltd. : Tyres (No. 321.G.8/21–25 ; £4,386).
Enfield Cable Works Limited : Cable (No. 35 : 66 ; £1,140)

The Egyptian State Railways are enquiring for 85 tons of electrolytic copper ingots and 55 tons of white-metal ingots for locomotive purposes. (No. 306.G.3/16 ; June 8.)

The Newfoundland Railway is to buy 50 steel-framed flat trucks of about 30 tons capacity ; 3 ft. 6 in. gauge.

The Colombian Railways are reported to have ordered from the U.S.A. a dozen wagons and 36 light railcars.

XUM

Railway Stock Market

The stock and share markets have continued to be dominated by the war news, and as a result there has been a further marking down of security values, while an increase in the margin between buying and selling prices was also in evidence. The volume of business remained very small, but selling pressure was not exceptionally heavy, and it is apparent that investors generally, while recognising that markets must be expected to move in accordance with the nature of the war news, are prepared to take more than a short view. Junior stocks of the home railways experienced a good deal of liquidation, but the latter was much smaller than might be deduced from the further sharp decline in quotations, which must naturally be read in relation to the prevailing conditions on the Stock Exchange. Holders of the junior stocks have many grounds for disappointment now that the benefits of the agreement with the Government will not be as satisfactory as appeared likely earlier in the year. Hopes in regard to future distributions on the junior securities have naturally had to be modified considerably because the railways will be subject to the dividend limitation proposals. Moreover, the market is taking the view that, if indications point to heavy air raids, the railways may deem it prudent to set aside part of the guaranteed minimum revenues as a special reserve against possible air raid damage in excess of the £10,000,000 provided for under this head by the financial arrangement with the Government. If this proved the case, current market estimates in respect of dividends on junior stocks would probably have to be revised. Nevertheless, it is felt in many responsible quarters that fears of the possible extent of air raid damage have been much exaggerated, and it can be expected that railway securities will show some recovery when there is general improvement on the Stock Exchange. Apart from the surrounding market conditions, there is no justification for the heavy depreciation shown in stocks of the guaranteed and senior preference class, and while it must naturally be expected that debentures will be influenced by the trend in British Funds, in some cases debenture stocks have been marked down unduly. It is, however, doubtful if many of the debentures are actually obtainable in any amount at around prices indicated by current quotations.

As compared with a week ago, Great Western ordinary has moved back further to 35. The 5 per cent. preference was 94, compared with 97½, and the 4 per cent. debentures 98½, compared with 102½. L.M.S.R. ordinary has declined to 15, while the senior preference was no better than 54½, a fall of 3½ points on the week. Moreover, the 1923 preference was as low as 38. L.M.S.R. 5 per cent. debentures remained at 107, but it was again doubtful if the quotation was tested adequately by business; the 4 per cent. debentures were 94½, which represents a fall of four points on balance. L.M.S.R. guaranteed, which was 87½ a week ago, has since reacted to 83. Southern preferred was unresponsive to the fact that the provisions of the Dividend Limitation Bill will not apply to stocks of this class, and it will, therefore, continue to rank for its full 5 per cent. Moreover, the deferred was no better than 13, while the 5 per cent. preference was 94, the guarantee stock 110, and the 4 per cent. debentures 97½.

Among L.N.E.R. securities the first preference moved down to 37 and the second preference to 13½. Of the guaranteed stocks, the first was 75 and the second 63. At 63½ L.N.E.R. 3 per cent. debentures showed a fall of three points, while the 4 per cent. debentures were 85, compared with 91½ a week ago. London Transport "C" was quoted at 37½.

As was to be expected, Argentine and other foreign railway securities moved with the general trend. Canadian Pacific issues were also lower.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1939-40	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1939	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1939	Prices: Lowest 1939	Prices: May 21, 1940	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	12.5.40	16,160	+ 4,540	19	358,160	257,970	+ 100,190	Ord. Stk.	10⅜	4¼	7¼	Nil
	Argentine North Eastern ...	753	11.5.40	ps. 179,800	+ ps. 5,700	46	ps. 6,846,000	ps. 7,149,900	– ps. 303,900	,,	4½	2	3¼	Nil
	Bolivar	174	Apl. 1940	4,650	+ 1,000	17	16,240	15,350	+ 890	6 p.c. Deb.	7¼	5¾	7	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	5¾	4½	7	Nil
	Buenos Ayres & Pacific ...	2,801	11.5.40	ps.1,352,000	– ps.251,000	46	ps.63.061,000	ps. 65,539,000	– ps. 2,478,000	Ord. Stk.	5½	2	2½	Nil
	Buenos Aires Central ...	190	23.3.40	$69,000	– $12,400	39	$3,782,900	$3,976,600	– $193,700	Mt. Deb.	14	8	13½	Nil
	Buenos Ayres Gt. Southern	5,082	11.5.40	ps.2,135,000	+ ps. 25,000	46	ps.106,994,000	ps. 106,829,000	+ ps. 165,000	Ord. Stk.	13⅜	4½	6½	Nil
	Buenos Ayres Western ...	1,930	11.5.40	ps. 786,000	– ps.175,000	46	ps.35,824,000	ps. 34,149,000	+ ps. 1,675,000	,,	10½	4	5½	Nil
	Central Argentine	3,700	11.5.40	ps.1,763,300	– ps.435,100	46	ps.79,749,250	ps. 87,432,200	– ps. 7,682,950	,,	11½	4	5½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4	1½	3	Nil
	Cent. Uruguay of M. Video ...	972	11.5.40	26,939	+ 6,089	46	972,515	847,108	+ 125,407	Ord. Stk.	2½	1/16	2½	Nil
	Costa Rica	188	Mar. 1940	22,121	– 1,348	40	158,217	200,680	– 42,463	Stk.	24½	18	22	9⅛
	Dorada	70	Apl. 1940	11,600	– 300	17	46,100	52,300	– 6,200	1 Mt. Db.	104½	102	102½	5⅛
	Entre Rios	810	11.5.40	ps. 221,100	– ps. 33,200	46	ps.10,698,600	ps.11,463,500	– ps 764,900	Ord. Stk.	6	3	3	Nil
	Great Western of Brazil ...	1,016	11.5.40	7,400	+ 500	19	226,500	192,100	+ 34,400	Ord. Sh.	3/-	1/2½	1/16	Nil
	International of Cl. Amer. ...	794	Mar. 1940	$591,812	– $60,622	13	$1,762,134	$1,750,144	+ $11,990	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	7¼d.	7¼d.	⅛	Nil
	La Guaira & Caracas	22¾	Apl. 1940	6,040	+ 160	17	28,015	21,700	+ 6,315	Stk.	7	6¼	6¼	Nil
	Leopoldina	1,918	11.5.40	22,256	+ 7,260	19	415,915	367,726	+ 48,189	Ord. Stk.	2⅛	⅛	1⅛	Nil
	Mexican	483	14.4.40	$284,000	– $65,700	15	$4,631,300	$4,756,900	– $125,600	,,	1⅜	⅛	⅛	Nil
	Midland of Uruguay	319	Mar. 1940	12,567	+ 3,360	40	93,700	83,075	+ 10,625	,,	2/-	⅛	⅛	Nil
	Nitrate	386	15.5.40	4,886	– 313	19	69,909	48,670	+ 21,239	Ord. Sh.	2⅛	1⅛	2⅝	6¼
	Paraguay Central	274	11.5.40	$3,353,000	– $1,304,000	46	$144,067,000	$141,674,000	+ $2,393,000	Pr. Li. Stk.	45½	36	40	15
	Peruvian Corporation ...	1,059	Apl. 1940	73,832	+ 12,347	44	680,483	670,650	+ 9,833	Pref.	1 1/16	1/16	3	Nil
	Salvador	100	13.4.40	c24,024	+ c4,574	42	c832,101	c882,139	– c50,038	Pr. Li. Db.	19½	16	15	Nil
	San Paulo	153½	5.5.40	39,302	+ 9,200	18	607,964	536,807	+ 71,157	Ord. Stk.	38	20	38½	6½
	Taltal	160	Mar. 1940	3,005	– 730	40	23,135	27,530	– 4,395	Ord. Sh.	⅜	6/6	11/16	7½
	United of Havana	1,353	11.5.40	29,779	+ 3,947	46	1,114,789	1,088,873	+ 25,916	Ord. Stk.	2	½	1	Nil
	Uruguay Northern	73	Mar. 1940	1,411	+ 553	40	9,950	9,104	+ 846	Deb. Stk.	2	2	2	Nil
Canada	Canadian National	23,695	14.5.40	922,799	+ 146,067	19	16,044,604	12,609,915	+ 3,434,689	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	– 4 p.c.	Perp. Dbs.	74⅜	60	75	5 1/16
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	100½	76	98½	4 1/16
	Canadian Pacific	17,162	14.5.40	641,800	+ 98,600	19	10,806,200	8,935,400	+ 1,870,800	Ord. Stk.	7⅜	3½	6½	Nil
India †	Assam Bengal	1,329	20.4.40	44,527	+ 4,714	3	89,872	81,778	+ 8,094	Ord. Stk.	76½	60	79½	3¾
	Barsi Light	202	30.4.40	3,450	+ 510	4	13,920	9,780	+ 4,140	Ord. Sh.	56½	50½	42½	8½
	Bengal & North Western ...	2,096	30.4.40	94,001	+ 10,277	4	277,613	236,076	+ 41,537	Ord. Stk.	277	229½	275	5 1/16
	Bengal Dooars & Extension ...	161	30.4.40	4,178	+ 1,547	4	11,024	7,646	+ 3,378	,,	91	84½	215	3
	Bengal-Nagpur	3,267	20.4.40	251,100	+ 8,274	3	495,975	464,387	+ 31,588	,,	94½	83½	95½	4 1/16
	Bombay, Baroda & Cl. India	2,986	10.5.40	316,500	+ 43,575	6	1,175,925	1,066,350	+ 109,575	,,	108	90	107½	5 1/16
	Madras & Southern Mahratta	2,967	30.4.40	197,175	+ 17,883	4	565,725	533,234	+ 32,491	,,	104 1/16	92	101½	5 1/16
	Rohilkund & Kumaon ...	571	30.4.40	20,959	+ 4,070	4	66,240	49,071	+ 17,169	,,	280	263	279	5½
	South Indian	2,531½	20.4.40	119,670	+ 8,266	3	232,468	230,234	+ 2,234	,,	102½	88	92½	5⅜
Various	Beira	204	Feb. 1940	64,706	—	21	358,968	—	—	—	—	—	—	—
	Egyptian Delta	623	10.4.40	5,255	+ 90	2	5,255	5,165	+ 90	Prf. Sh.	½	½	⅜	Nil
	Kenya & Uganda	1,625	—	—	—	—	—	—	—	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	55	39	48½	7 1/16
	Midland of W. Australia ...	277	Feb. 1940	12,214	– 2,729	35	102,871	122,176	– 19,305	Inc. Deb.	91½	87½	82½	4⅛
	Nigerian	1,900	23.3.40	42,088	+ 390	51	2,047,438	2,067,255	– 19,817	—	—	—	—	—
	Rhodesia	2,442½	Feb. 1940	366,546	—	21	1,887,026	—	—	—	—	—	—	—
	South Africa	13,288	27.4.40	660,899	+ 23,896	4	2,630,061	2,453,812	+ 176,249	—	—	—	—	—
	Victoria	4,774	Jan. 1940	989,333	+ 206,698	31	5,827,335	5,516,376	+ 310,959	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of 1/16.
Argentine traffics are now given in pesos. † Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend